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EDITORIAL

Dr. Shryock Retiring from The Johns Hopkins Institute

With the end of the present academic year, Dr. Richard H. Shryock, having reached the age of 65 years, will retire from his present functions at The Johns Hopkins University. Coming to the Hopkins from the University of Pennsylvania in 1949, where he had been active in the field of American history, Dr. Shryock had long evinced special interest in the history and sociology of American medicine and had served as President of the American Association of the History of Medicine, 1946-48. His *Development of Modern Medicine* has been translated into many languages and, together with his other works, has given him world-wide fame.

For the past nine years Dr. Shryock has served as William H. Welch Professor of the History of Medicine and Director of the Institute of the History of Medicine at The Johns Hopkins University, thus succeeding Dr. Henry E. Sigerist who had resigned in 1947. At the same time Dr. Shryock was a member of the history department of the philosophical faculty of the University. The *Bulletin* is particularly indebted to him for his administrative guidance as Director of the Institute and for his services on the Advisory Board.

The Johns Hopkins Medical History Club, which counts Dr. Shryock amongst its past presidents, in cooperation with the history department

of the University is sponsoring a farewell dinner in honor of Dr. and Mrs. Shryock on May 16, 1958.

Dr. Shryock's retirement means but the beginning of new endeavors in another sphere. He will return to his native Philadelphia where he will hold appointments as Librarian of the American Philosophical Society and part-time professor at the University of Pennsylvania. The *Bulletin* wishes him many years of fruitful and pleasant activity.

OWSEI TEMKIN

FIGURE 1. Kwan Ruk (Paikjae Priest)
(from Hōryû-ji, also called Ikaruga-dera)

FIGURE 2. Paikjae Shin Chip Bang: Ishinho

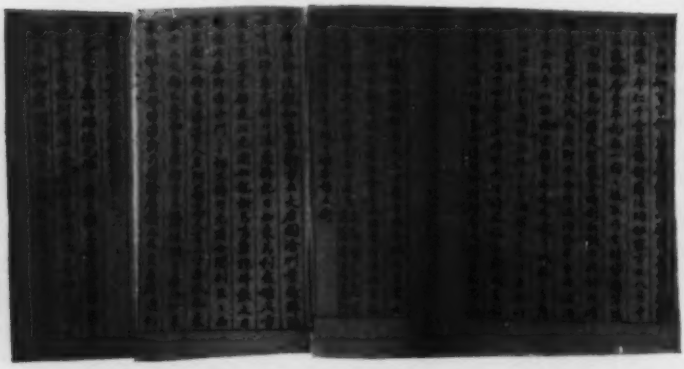

FIGURE 3. Ishinho quoting Shilla Priests' Prescriptions:

A. Shilla Bup Sa Bang (Shilla Priests' Prescriptions)
B. Shilla Lyu-kwan's Secret Therapeutics
C. Shilla Priests' Secret Prescriptions

TRANSMISSION OF KOREAN MEDICINE TO JAPAN DURING THE AGE OF THE THREE KINGDOMS[1] (37 B. C. — 680 A. D.)

DOO JONG KIM

Historically, it is evident that Korean culture had been introduced into Japan ever since the remote ancient age. This tendency was intensified by the middle of the Age of the Three Kingdoms (approximately 200 A. D.) in the form of Chinese canons, craftsmen, etc.

Likewise, in the field of medicine, a considerable number of physicians had visited Japan by 414 A. D. upon her invitation, and a number of medical and herbal books went along with them. For the following two centuries, through the rest of the Age of the Three Kingdoms, Japan was to depend on Korea for medicine.

When Shilla attacked and conquered the kingdom of Paikjae in 660 A. D., many Paikjae physicians went to Japan, as well as those political refugees who refused to succumb to Shilla's power, thus opening the way for Japanese medicine to prosper.

If one consults the textbooks of the history of Western medicine, one may find a brief description of Oriental medicine and of the way in which Chinese medicine was transmitted to Japan by Korea.[2] No underlying historical facts are given, however; of course, this is because these texts do not primarily deal with the history of Oriental medicine, but also it is true that little is known to the West in this regard. This is why one has to depend upon the Japanese and Korean references during the Age of the Three Kingdoms.

It is extremely difficult to investigate the matter fully, for most of the literature of the time has been lost and is not available to our generation. The author nevertheless wishes to discuss those physicians and books chronologically, based upon whatever scanty data are available among a few remaining Korean and Japanese references.

1. Shilla physician, Kim Mu (Japanese: Kon-Bu).

In 414 A. D., the sick Japanese King, Yun Kong, sent to Shilla for a physician. Shilla complied by sending Kim Mu, who took care of the

[1] The three Korean kingdoms of Kokuryo, Paikjae and Shilla.

[2] Arturo Castiglioni, *A History of Medicine*, translated from the Italian and edited by E. B. Krumbhaar: New York, Knopf, 1951, pp. 105-112.

King and came back with rewards. This is the very earliest reference in Japanese history to "medicine" or "physician." Undoubtedly, Kim Mu laid the corner-stone for Japanese medicine.[3] To what extent Korean medicine had already been influenced by the Chinese herb medicine will be discussed below.

2. Kokuryo physician, Duklai

In 456 A. D., Japan sent to Paikjae for a capable physician and Paikjae complied by sending Duklai, a Kokuryo physician. His descendants practiced medicine in Nampa (Osaka, Japan) and were called the Nampa Doctors. This is the first patrimonial physician in Japan.[4] A well-known Nampa Doctor, Hai-Lil, who was the first to import Chinese medicine directly from Tang, was the fifth generation descended from Duklai.

3. Paikjae physician, Doctor Wang-Yoo-Leng-Ta (Japanese: Oyu-Ryōda)

Paikjae Herbalists, Ban-Lyang-Pung and Chung-Yoo-Ta (Japanese: Han-Ryōhō and Tei-Yūda).

In 552 A. D., Japan asked Paikjae to send a doctor of medicine, an astrologist, and a herbalist. Next year, Paikjae sent Wang-Yoo-Leng-Ta, Doctor of Medicine, sixth court rank, Ban-Lyang-Pung, Herbalist, eighth court rank, and Chung-Yoo-Ta, Herbalist, ninth court rank. This was the first time Japan had known herbal remedies.[5]

4. Chi-Chong of Oh (a kingdom in South China)

In 561 A. D., a southern Chinese, Chi-Chong, went to Japan via Kokuryo, carrying with him 164 volumes of medical and chirurgical canons, herbals, and atlases of acupuncture and moxibustion. This was the first known importation of Chinese medical books to Japan.[6]

5. Paikjae priest, Kwan Ruk[7] (Japanese: Kwanroku)

In 602 A. D., a Paikjae priest, Kwan Ruk, went to Japan with books on astronomy and geography, and medical books. Japan let Il-Byeng-Rip learn the medical art.[8]

[3] *Nihon-Shoki* (Historical description of Japan), vol. 15; Y. Fujikawa, *Nihon I-Gaku-Shi*: Tokyo, 1903, Chapter II; Y. Fujikawa, *Japanese Medicine*, translated from the German by John Ruhräh: New York, Clio Medica, 1934, pp. 3-7 and 75.

[4] *Nihon-Shoki*, vol. 19.

[5] *Ibid.*; G. Sarton, *Introduction to the History of Science*: Baltimore, Williams and Wilkins, 3 vols., 1927-1948: vol. I, p. 454.

[6] *Nihon-Shoki, loc. cit.*

[7] *See* Fig. 1; G. Sarton, *op. cit.*, p. 462.

[8] *Nihon-Shoki*, vol. 22; G. Sarton, *op. cit.*, p. 462.

6. There is a legend among Japanese acupuncturers that, in 642 A. D., a Japanese called Kihabenkinama went to Shilla to study acupuncture and came back to Japan to become Doctor of Acupuncture. This would seem to suggest that Shilla's acupuncture was admired by the Japanese acupuncturers of the time.[9]

7. Kokuryo court physician, Moh-Chi

It is known that a physician at the Kokuryo court, Moh-Chi, attended the commencement ceremony of the Era of Paik Chi held by the Japanese Emperor Ho-Duk, in 650 A. D.[10]

8. In 671 A. D., Japan granted court ranks to many Paikjae erudites, among whom there were a number of herbalists. Bonilbiza, Chanpara, Kimrakimshu, and Guishil-Zipsin were among those granted top ranks, and Duk-Jungshang and Kildai-Shang were granted lower ranks.[11]

9. In 683 A. D., Bup Chang, a Paikjae priest, sent his countryman, Ikchun-Kimjong, to take care of the sick Japanese Emperor, Chen-Mu, who was treated with a herb called Paik-Chul with good effect. The Emperor granted silk to his doctor as a reward.[12]

10. In 686 A. D., Shilla sent a gift to Japan, which consisted of hundreds of items, such as tiger skin and herbs. Some important herbs in use in Shilla must have been included in the gift.[13]

11. By approximately this time, though their exact individual chronology is not known, there were a number of Korean physicians who contributed to Japanese medicine. They are, for example:

a) Uk-In:

Upon the death of his court physician, Uk-In, a native of Paikjae, the Japanese Emperor, Chen-Mu, granted him the first rank and one hundred houses in memory of his distinguished service.[14]

b) Paikjae priests, Bub-Myeng and Da-Shanh:

Both were physicians as well as priests and treated respectively Japan's Chung-Shin-Kyemza (the keeper of the Privy Seal), and an empress.[15]

[9] Y. Fujikawa, *Nihon I-Gaku-Shi*, chapter IV.
[10] *Nihon-Shoki*, vol. 25.
[11] *Ibid.*, vol. 30.
[12] *Ibid.*, vol. 29; G. Sarton, *op. cit.*, vol. III, p. 293, footnote 94.
[13] *Nihon-Shoki*, vol. 29.
[14] *Ibid.*
[15] *Ibid.*, vol. 30.

c) Medical Doctor, Duk-Za-Chin,

Magician Doctors, Mok-Sho-Chung-Mu and Shya-Taik-Man-Shu:

In 702 A. D., Emperor Chi-Tong of Japan granted 20 pounds of silver to each of them. They were natives of Kokuryo and Paikjae.[16]

12. In 756 A. D., the drug list of Chung-Chang-Wyun (Japanese: Shōsōin of Nara), the Japanese Royal Storehouse, listed pounds of Shilla-made mutton suet, which must have been used for unguent.

13. Veterinary medicine

In 595 A. D., a Kokuryo priest, Hoi-Za, first introduced Buddhism into Japan, at which time the Japanese Prince Regent, Sung-Duk (Japanese: Shōtoku-Taishi), let Kul-Chye-Pil study the art of treating the horse. The art was to be inherited through generations and was known as the " Prince's " School of veterinary medicine.[17]

Unfortunately, these brief data are far from satisfactory for the determination of the nature and extent of the art and practice of medicine of the time.

Medical and herbal books, which were brought into Japan are to be dealt with next:

As I have mentioned above in (4) and (5) respectively, the earliest books were the 164 volumes of medical and chirurgical canons, herbals, and atlases brought by Chi-Chong from Kokuryo, and next, the medical books brought by the Paikjae priest, Kwan-Ruk. However, none of the titles of these books are known. Chi-Chong's books were no doubt those commonly used by the Chinese herb doctors of the time, such as Whang-Je-Nai-Wue-Kyung, the Herbals, and the Atlas of Chirurgical Acupuncture. However, whether Kwan-Ruk's books are of Chinese or Indian origin, or native Paikjae medicine, is not known.

There are some Paikjae and Shilla books which were introduced to Japan through unknown routes. They were used as references in the Ishinho, written by Japan's Tamba-Yasuyori in 984 A. D., and in the Iyaku-Sho, written by Yasuyori's grandson, Tamba-Masatada. These books are:

1. Paikjae Shin Chip Bang (New Collection of Paikjae Prescriptions)[18]

This book was taken over by two chapters of the Ishinho, and one of

[16] Y. Fujikawa, *Nihon Kwa-Gaku*: Tokyo, Toyo-Shizyo.

[17] *Nihon-Shoki*, vol. 22; Shirai, *Nihon-Zoo-I-Gaku-Shi* (History of veterinary medicine of Japan): Tokyo, 1943; G. Sarton, *op. cit.*, vol. I, p. 473.

[18] *See* Fig. 2.

these chapters was again taken over by the Iyaku-Sho. The first chapter deals with the treatment of consumption and the second with that of simple carbuncle. Their prescriptions all come from Chinese medicine, and there are explanations to the effect that they have been adopted from Kal's Chinese Prescriptions. These two chapters alone may not suffice to determine the whole content of the original book, but one can have a fairly good idea as to the extent of the influence of Chinese medicine.

2. Shilla Bup Sa Bang (Shilla Priests' Prescriptions)
3. Shilla Bup Sa, Lyu-Kwan Bimil Bang (Shilla Priest, Lyu-Kwan's Secret Therapeutics)
4. Shilla Bup Sa Bimil Bang (Shilla Priests' Secret Prescriptions)[19]

These three books are taken over by the Ishinho. However, it is not clear whether they are entirely different books, or different versions of the same book in which were collected prescriptions used by Shilla priests. The Shilla Bup Sa Bang (2) contains two chapters. One is made up of spells to be used when preparing medicines, and it is apparent that this was influenced by the mystic medicine of ancient India, the priests of which tried to eliminate evil diseases with such spells. The other one is a brief chapter made up of Chinese prescriptions. Some unusual Chinese medicines are rather widely used by Shilla physicians, giving us an impression that their own experiences are integrated in these prescriptions. Lyu-Kwan's Secret Therapeutics (3) deals with the bedroom secrets of controlling the sexual desire of both sexes. It is closely related to Taoism, which emphasizes that longevity is to be attained by controlling sexual desire. Shilla Priests' Secret Prescriptions (4) used the *exposed-honeycomb*, which is one of the items of Chinese herb medicine. However, in explaining its effectiveness, this account does not agree with its Chinese counterpart, revealing to some extent another, independent, development of Shilla medicine.[20]

We have reviewed some typical examples of the literature of Korean medicine, which had been brought to Japan. In general, the question may be raised as to whether the Korean medicine of the Age of the Three Kingdoms that was transplanted to Japan was, in fact, merely disguised Chinese medicine, or the fruit of independent experience obtained by the Koreans; also, what was the extent of the relationship with Indian medicine, and so forth?

[19] For (2), (3), (4), *see* Fig. 3.

[20] Miki, Chosen-I-Sekko (Review of Korean medical references), chapter III, *Igi-shimbo*: Tokyo; Doo Jong Kim, *Hankuk-I-Hak-Shya* (History of Korean medicine): Seoul, 1954, chapter III.

Let us begin with the first possibility: Chinese medicine. Of course, the medicine of the Three Kingdoms was based on that of China and most of the prescriptions were Chinese; and it is therefore primarily Chinese medicine. However, one has to take into consideration the fact that when the Shilla physician, Kim Mu, went to Japan in 414 A. D., Shilla was maintaining a merely nominal communication with China, and it was moreover too early for Kokuryo and Paikjae to undergo a full scale influence of Chinese medicine. Both historical background and careful study of the books support the opinion that this medicine was developed through independent experience on an originally Chinese basis, rather than the conclusion that it was entirely and merely Chinese medicine transmitted to Japan through Korea.

As to the Indian influence, I have already mentioned above that Shilla admitted spells and prayers in an effort to dispel disease. No other significant data are available in this respect. In view of the facts that many of the physicians who went to Japan were Buddhists and that Japan had available the priests' prescriptions, which were collections of the prescriptions used by Buddhist priest physicians, we can only say that there was a definite, but secondary, influence from Indian medicine.

To sum up, I wish to say that the medicine of the Three Kingdoms was primarily based upon Chinese medicine, was under some influence from Indian medicine, and was developed, by preservation of the preceding tradition and harmonizing it with the other two factors, to a point of prosperity that enabled it to be exported to an as yet underdeveloped neighbor, Japan.

MEDIEVAL BOLOGNA AND THE DEVELOPMENT OF MEDICAL EDUCATION

VERN L. BULLOUGH

In any study of the development of medical education the university at Bologna must be included for several reasons.[1] (1) It made up one of the trinity of late medieval medical schools along with Paris and Montpellier. (2) Like Paris, it was one of the two archetypal universities and thus had tremendous influence on future schools. (3) Bologna seems to have approached the study of medicine differently from either Paris or Montpellier, and from the modern view its approach was more "scientific." Bologna, for example, included surgery in its curriculum, and it was probably the first school in medieval times to base its surgery upon information gained from dissections. Why and how this approach differed should be investigated. (4) Bologna has many extant documents which give information that is not available for either Paris or Montpellier but that might well apply to these schools to aid in giving a more complete picture of the medieval medical school. In previous papers on Paris and Montpellier[2] I have sketched the general organization of the medieval

[1] Several valuable source materials have been collected and edited by Carlo Malagola under the title *Statuti delle università e dei collegi dello studio Bolognese* (Bologna: Nicola Zanichelli, 1888). I have referred to this collection as *Statuti* throughout the paper. Other charters and regulations are found in Umberto Dallari, *I rotuli dei lettori legisti e artisti dello studio Bolognese dal 1384 al 1799*, 3 vols. (Bologna: Regia Tipografia dei Fratelli Marlani, 1888-91). Other works which proved valuable were Cherubino Ghirardacci, *Historia di Bologna* (Bologna, Pt. I, 1596, Pt. II, 1659) and [Mauro Sarti and Mauro Fattorini], *De claris archigymnasii Bononiensis professoribus a saeculo XI usque ad saeculum XIV*, vol. I, part 1 & 2 (Bologna, 1769-72). This last proved to be one of the best sources about the great masters of the university and the early history of the school. The most comprehensive coverage of Bologna in English is in Hastings Rashdall, *The Universities of Europe in the Middle Ages* (new ed., F. M. Powicke and A. B. Emden, 3 vols., Oxford: Clarendon Press, 1936). Theodor Puschmann, *A History of Medical Education*, translated by Evan H. Hare (London: H. K. Lewis, 1896) has some information but he would rate Bologna much lower than I would. Since Bologna is so important in the development of anatomical study, Charles Singer, *The Evolution of Anatomy* (The Fitzpatrick Lectures, 1923-24, London: Kegan Paul, Trench, Trubner, & Co., Ltd., 1925) proved helpful. The monograph material on Bologna in the standard journals is very meager and much of it is not very accurate. Much the same is true of many of the standard histories of medicine. I feel Bologna is deserving of more study and I hope this is a step in the right direction.

[2] See "The Development of the Medical University at Montpellier to the End of

medical school. In this paper I will try to concentrate on those aspects at Bologna that are different or that emphasize certain understood practices at the other schools. In general, the texts and the actual organization of the school can be assumed to be similar to Paris or Montpellier except where indicated.

Bologna was not primarily a medical but rather a law school. It was in this area that it gained its first reputation. It served as a model for many of the Italian, as well as other European, universities; its unique contribution to university administration was student control rather than faculty control. This control was exercised through the rectors and *consiliarii* of the university. In imitation of Bologna, universities with law, art, and medical schools grew up in "nearly every important city-republic in northern Italy."[3] Few of these schools managed to achieve more than local fame but most of them, following the model of Bologna, gave precedence to legal studies, while second place was "everywhere occupied by medicine." As a result, the Italian universities were primarily the homes of law and science, although theology and the arts were also taught.[4] Bologna, during the medieval period, was the most famous of the Italian schools.

Names of physicians appeared in Bologna documents before the year 1200 as they did at Paris and Montpellier.[5] The existence of physicians does not, however, necessarily indicate the presence of a medical school. Not until the beginning of the thirteenth century does the first physician labeled "magister" appear.[6] By the second half of the thirteenth century there are recorded graduations of medical students, and the title of doctor of medicine was being used by medical teachers.[7] The man who is most generally accepted as the founder of the medical school is Taddeo di Alderotto (also known as Thaddaeus Florentinus). He began teaching at Bologna around 1260.[8] A good foundation in surgery had been laid by Hugh de Lucca[9] who died *c.* 1258. Rolandus Parmensis,[10] a contemporary

the Fourteenth Century," *Bull. Hist. Med.*, 1956, *30*: 508-523 and "The Medieval Medical University at Paris," *Bull. Hist. Med.*, 1957, *31*: 197-211.

[3] Rashdall, *op. cit.*, II, 35-36.

[4] *Ibid.*, II, 59.

[5] Sarti and Fattorini, *op. cit.*, I, part I, 439 ff.

[6] *Ibid.*, I, part I, 433. The first *medicus* also called *magister* was Jacobus Britonoriensis who died in 1213.

[7] Rashdall, *op. cit.*, I, 235-36.

[8] Sarti and Fattorini, *op. cit.*, I, part I, 468.

[9] *Ibid.*, I, part I, 444.

[10] *Ibid.*, I, part I, 449.

of Hugh's, had taught both at Salerno and Bologna. Guilielmus de Saliceto,[11] Nicholas Fernham,[12] Rolandus Cremonensis,[13] and Theodoric de Lucca,[14] were all active at Bologna during the thirteenth century. The important fact about these men is that most of them were physicians *and surgeons*. This might well explain why surgery held such an important position at Bologna as contrasted with either Paris or Montpellier. The early reputation of the surgical founders might have consolidated the position of surgery in the university.

Another factor that might account for the place of surgery is that the medical university at Bologna also incorporated the arts university. This might have been due to the fact that at Bologna Aristotle was closely connected with both medicine and the arts, while in the north his physiology was largely ignored, and he was respected chiefly for his speculative philosophy which was indispensable to the scholastic theologian, but not to the physician.[15] Whatever the cause of the consolidation, the effect was to give the medical university a much wider foundation than its northern counterpart since it embraced students not only in medicine but also those in "cyrugia, loyca, phylosophya, sive astrologia vel grammatica vel notaria."[16] The broad basis of the medical school aided in bringing surgery and anatomy into the faculty more easily than was the case in the north; so many things were already included that a few more were easily accommodated. But even though these other disciplines were connected with the medical school, the medical student remained dominant, and only the student of medicine was allowed to vote in the congregation where the business of the university was carried on. This gave the medical students firm control of affairs, and made them perhaps willing to allow university status to other practitioners, since all the other students were merely *subditi* or subjects of the medical university.[17]

From the very beginning surgeons were important, and they were active in spreading their techniques through their writings and through their pupils. Guy de Chauliac, writing in the mid-fourteenth century, said that there were different theories of surgery at Bologna, with each group having its leaders and followers. The Salernitan trained Roland of Parma

[11] *Ibid.*, I, part I, 466.
[12] *Ibid.*, I, part I, 448. Nicholas of Fernham had taught arts at Oxford and Paris before he came to Bologna where he taught medicine.
[13] *Ibid.*, I, part I, 447-48.
[14] *Ibid.*, I, part I, 450 f. He was the son of Hugh.
[15] Rashdall, *op. cit.*, I, 235.
[16] *Statuti*, rubric 94, 287-88.
[17] Rashdall, *op. cit.*, I, 238.

believed in the Hippocratic principle of *laxa bona, cruda vero mala*, while he was opposed by Theodoric of Lucca (and his father Hugh) who followed the Galenic principle that dryness is allied to health (*siccum vero sano est propinquius, humidum vero non sano*) and had used wines and poultices on all wounds. The third group, represented by William of Saliceto, according to de Chauliac attempted to follow a middle way.[18] Surgery continued to be important at Bologna and many famous surgeons including de Chauliac had studied there.

In 1405 the course of study in surgery was outlined in the university statutes.[19] Each year the surgical lectures were to begin with the *Chirurgia* of Bruno [20] followed by the *Cirugia* of Galen. The second course of lectures was devoted to the study of Avicenna's surgery, followed by lectures on the seventh book of Almansor.[21] Each lecture was to cover a specified division (*punctum*) of the text.[22] Failure to complete the assigned amount resulted in a fine of twenty Bolognese *solidi* (payable to the university). This fine was equivalent to the fee required for a student to take the course, thus it was a sizable cut in the earnings of the lecturer.

Besides giving lectures, each surgical instructor was to hold at least two disputes on surgical questions. These disputes, held in the afternoon,[23] were attended by the rector of the university as well as by all the doctors lecturing in surgery and medicine. Even though the medical doctors attended the disputes, the subject matter was to be confined to questions on surgery and surgical terms, an indication that even the non-surgeon at Bologna might have had some surgical knowledge. None of the titles of these surgical disputes at Bologna are extant for this period.[24]

Concurrent with the development of surgical teaching at Bologna was the growth of anatomical study. Bologna was probably the first school

[18] Guy de Chauliac, *La grande chirurgie*, edited and translated into modern French by E. Nicaise (Paris: Félix Alcan, 1890), pp. 15-16.

[19] *Statuti*, rubric 35, 247-48. An English translation of this document can be found in Lynn Thorndike, *University Records and Life in the Middle Ages* (New York: Columbia University, 1944), 284-85.

[20] Bruno wrote his *Chirurgia* in 1252 at Padua. In the printed edition of Venice (1499) it occupied only thirty-six pages. He also wrote a *Chirurgia minor* which was printed in six pages.

[21] This was the *Liber medicinalis Almansoris* by Rhazes which had been translated by Gerard of Cremona. Its name was derived from the fact that it was dedicated to el-Mansur, Sultan of Khorasan.

[22] The various *puncta* were announced at the beginning of the course by the lecturer.

[23] However, if the dispute occurred on a feast day it was held in the morning.

[24] These titles were lost despite the fact that the beadle of Bologna was supposed to keep a record of them. *Statuti*, rubric 35, 247-48.

since classical times to do human dissection, and the sources at Bologna include a great deal of information on the training a medieval student would receive in the subject. Charles Singer, after a study of various MSS from Bologna during this period, concluded that the years 1266-1275 saw the beginning of dissection at the school. The initial reason for examining the human body at Bologna or elsewhere, according to Singer, was to gather evidence for legal procedures. "This is a reason, and the only reason, that would have appealed to an official of Bologna University of the thirteenth century." But once authorized, Bologna physicians and surgeons were willing and able to utilize these post-mortem examinations for anatomical study. The surgical works of William Saliceto (*c.* 1215-1280) indicate that perhaps he had utilized just such an examination to enhance his knowledge of the human body. Much of his material was obviously borrowed from the various Arab works on anatomy, but Singer feels there is enough originality to indicate that he had had access to the dead human body, and it was from him that Singer dated the beginning of medieval anatomical study.[25]

The use of human dissection as a teaching aid continued to develop until, by the beginning of the fourteenth century, anatomical demonstrations were being given publicly at Bologna. Mondino dei Luzzi (*c.* 1270-1326), a student of Thaddeus at Bologna, performed public dissections after he joined the teaching staff of the university in 1306. His *Anathomia*,[26] written in 1316, is the "first modern work on the subject." As a result of this work Mondino has been called the "Restorer of Anatomy."[27] Mondino's work is divided into six parts: (1) Introduction to the whole body; (2) the natural members (liver and spleen, etc.); (3) the generative members (womb, etc.); (4) the spiritual members (heart and lungs); (5) the animal members (brain, eyes, etc.); and (6) the peripheral parts. From the way in which the work is organized it seems possible that it was meant to be read while someone was dissecting. Thus in describing the chest Mondino says:

> After the muscle, the bones. Now the bones of the chest are many and are not continuous in order that it may be expanded and contracted, since it has to be ever

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[25] Singer, *op. cit.*, pp. 71-72.

[26] In his introduction, Mondino said that he had composed the work for his students ("proposui meis scholaribus in medicina quoddam opus componere"). See Ludwig Choulant, *History and Bibliography of Anatomic Illustration*, ed. and transl. Mortimer Frank (Chicago: University of Chicago Press, 1920), p. 88.

[27] Singer, *op. cit.*, pp. 74-75.

in motion. . . . The bones are of two kinds, namely the ribs and the bones of the thorax. . . .[28]

This style of teaching is indicated in several illustrations from the period which give examples of anatomical demonstration. Usually two persons were required to give the demonstration with one reading from the rostrum while the other did the actual dissection.[29]

Guy de Chauliac who studied at Bologna near the middle of the fourteenth century described his anatomical instruction as follows:

My master Bertruc taught it [anatomy] many times in this manner: Having laid the dead body on the table (*banc*), he made four lessons on it. In the first the nutritive members were treated since they decay the soonest.[30] In the second the spiritual members, in the third the animal members, and in the fourth the extremities were treated.[31] And following the commentary of the book of Sects [Galen] in each there are nine things to see, that is to know the situation, the substance, the constitution (*complection*), the number, the figure, the relations of connections, the actions and the uses, and the diseases which affect them. Thus from anatomy the physician may gain assistance and aid in the knowledge of diseases, in the prognosis and in the cure. We make anatomies also on bodies dried in the sun, or consumed in the earth, or submerged in running or boiling water. This shows us the anatomy at least of the bones, cartilages, joints, large nerves, tendons, and ligaments. By these two means we must teach anatomy on the bodies of men, apes, pigs, and many other animals, and not from pictures as done by the before mentioned Henri, who had thirteen pictures for the demonstration of anatomy.[32]

The Henri mentioned by de Chauliac was Henri de Mondeville who might have studied at Bologna near the end of the thirteenth century.[33] Mondeville was definitely at Montpellier and Paris and had apparently taught anatomy there with the aid of large illustrated diagrams.[34] This method was not as scientific as that employed by the Bolognese, but it was much better than the other alternative, no anatomy at all. Montpellier did allow human dissections before the end of the fourteenth century.

[28] Mondino dei Luzzi, *Anathomia*, ed. and transl. by Charles Singer in Joannes Ketham, *Fasciculo di medicina*, in *Monumenta medica* series, II (Florence: R. Lier & Co., 1925), Pt. I, 80-81.

[29] See for example Singer, *The Evolution of Anatomy*, fig. 35, p. 77.

[30] Since modern methods of preservation were lacking this was a serious problem and as a result dissections were performed as hurriedly as possible and in many areas only in the winter months.

[31] This is a different breakdown than Mondino's but the similarities are apparent.

[32] Chauliac, *op. cit.*, pp. 30-31.

[33] Ernest Wickersheimer, *Dictionnaire biographique des médecins en France au moyen âge* (Paris: E. Droz, 1936), pp. 282-83, doubts that Mondeville received any training in Italy. Singer, *op. cit.*, p. 72, states that he did.

[34] Singer, *op. cit.*, p. 72. Reproductions of the diagrams of Henri de Mondeville can be found in *ibid.*, p. 80, and in Choulant, *op. cit.*, pp. 58-59.

Regulations for the study of anatomy at Bologna were laid down in the university of medicine and arts statutes of 1405. Previous to these statutes, quarrels had evidently arisen as to the procedures in anatomical demonstrations, and to prevent further disputes, set rules were adopted. Permission of the rector was necessary before any anatomy could be performed. The person who obtained such permission was allowed to invite any qualified person he wanted to attend, so long as no more than twenty persons attended an anatomy of a male. Thirty persons were allowed to witness one of a female, probably because these were performed less frequently. To qualify, a student had to be a third year student in medicine and could not have attended another dissection that year. No student was to witness more than one female anatomy and two male anatomies while at Bologna.[85] Such regulations indicate that anatomical demonstrations were not carried out very frequently and that the student's knowledge of actual anatomy would be very slight.

The lecturing methods of the professors in the medical school are not recorded, but in the law school a Petrus Peregrossi, a pupil of Odofredus at Bologna, gave a description of his master's methods. This would probably apply with very slight alteration to the medical faculty at Bologna or any other university.

> First, I shall give you summaries of each title before I proceed to the text; secondly, I shall give you as clear and explicit a statement as I can of the purport of each Law (included in the title); thirdly, I shall read the text with a view to correcting it; fourthly, I shall briefly repeat the contents of the Law; fifthly I shall solve apparent contradictions, adding any general principles of Law (to be extracted from the passage), commonly called "Brocardica," and any distinctions or subtle and useful problems (*quaestiones*) arising out of the Law with their solutions as far as the Divine Providence will enable me. And if any Law shall seem deserving by reason of its celebrity or difficulty, of a Repetition, I shall reserve it for an evening Repetition.[86]

Repetitions were a more detailed and elaborate discussion of some particular question which had arisen out of the lectures. In the medical school the repetitions were not given by the masters but by advanced students, perhaps similar to the quiz session in large science classes in the modern university. Some idea of the type of questions pondered in the thirteenth and fourteenth centuries can be found in the writings of Peter of Spain (*c.* 1210-77). Peter, who became Pope John XXI, had studied medicine both in France and Italy. He wrote, among other things,

[85] *Statuti*, rubric 96, 289-90.
[86] Rashdall, *op. cit.*, I, 218.

a commentary on the diets of Isaac; in this work he raises several questions on some statements of Isaac, giving authorities for both affirming and denying the statements or propositions. These propositions were given the title of *quodlibeta* in the middle ages because they could be resolved by either the affirmative or negative arguments.[37] Some of the propositions are seemingly far removed from the subject of diet: "Why do some plants bear fruit twice a year?" "Why castration improves the conduct of beasts, makes men worse?" "Can natural death be retarded?" or "Is bad food more injurious than bad air?"[38]

Peter of Padua (or Abano) (*c.* 1250-1316), in his work entitled the *Conciliator*, gave some two hundred questions of this type which he and his associates had investigated publicly for over ten years. Each main problem is stated, then the doubtful terminology is explained; the utterances of past authorities on the subject are reviewed; the true solution is then reached and the reasoning process by which it is reached, explained; lastly, the hostile objections are removed. Samples of the questions would include ones similar to Peter of Spain: "Has air weight in its own sphere?" "Is death more likely to occur by day or night?" "Does blood alone nourish?" Are the arteries dilated when the heart is and constricted also when it is?"[39] These are similar to disputes at Paris carried on in the sixteenth century[40]—an indication perhaps that Renaissance medicine had not advanced far beyond medieval.

Further light on the activities of a medical professor is shed by Gentile da Foligno, a professor at Bologna in the fourteenth century. In 1345 Gentile completed a commentary on fevers from parts of the fourth book of Avicenna's *Canon*, and in an appended note Gentile recorded his activities during the past year. The commentary was probably the outcome of Gentile's academic lectures, since he had lectured that year on the second and fourth books of the *Canon*, as well as on the *Prognostics* of Hippocrates and Galen's *De accidenti et morbo*, on which he had also written a commentary. He had also written several discussions during

[37] *Commentaires de la faculté de médecine de l'université de Paris (1395-1516)*, edited and annotated with an introduction by Ernest Wickersheimer (*Collection de documents inédits sur l'histoire de France*; Paris: Imprimerie Nationale, 1915), p. xxv.

[38] See Lynn Thorndike, *History of Magic and Experimental Science* (New York: The MacMillan Company, 1923-41), II, 488-507, for an account of Peter.

[39] *Ibid.*, II, 875-87.

[40] Stephen d'Irsay, "The Teaching and Practice of Medicine in the Medieval University of Paris," *Bulletin of the Society of Medical History*, 4 (1928), 41-53; also *Commentaires*, p. 491, and George Sarton, *Introduction to the History of Science* (Baltimore: The Williams and Wilkins Co. for the Carnegie Institute of Washington, 1927-42), III, 248.

the year, including one on tastes (or sauces)[41] and another on the mixing of medicines. He had also started work on his treatise *Sermo de silva*. All in all Gentile had had a very busy year for which he gave thanks to God for having given him the fortitude to accomplish all these tasks in the midst of many worldly adversities. Evidently he had earlier composed commentaries on other parts of the *Canon*, since he refrained from making the customary introductory remarks in his work on fevers on the grounds that he already had made them in connection with his commentary on the first book of the *Canon*. He added that he did not wish to repeat himself, since he wanted to devote his time to essentials rather than puerilities.[42]

Sources at Bologna give some indication of the income of medical teachers. Originally the income of the faculty at Bologna, as at other medieval universities, was dependent upon the fees collected by the individual masters from their students. With the growth of student organizations at Bologna a professor made terms with a group of scholars, agreeing to lecture for a certain stipend which was prorated among the students. Since the amount of the stipend was not fixed by custom but too often was due to the bargaining ability of the professor, ill feelings developed between the teachers and students. Not even the most distinguished professor was exempt from some argument about his fee;[43] the end result was often unsatisfactory to both parties. Few of the universities had any permanent buildings during this period, a fact which allowed the unhappy masters or students an effective protest that their modern successors do not have: they moved. As a result dissatisfaction often led to secession from the university of students or masters to another town. Several new universities in France, Italy, and England were brought about by such secessions. The Bolognese, especially, seemed willing to change locations. As a result, various towns desiring both the added income from the students and masters, as well as some measure of intellectual fame for being the home of a university, bid to be the site of any such secessions.[44] These towns offered such inducements as exemptions from taxation,

[41] Whether the word is tastes or sauces depends on how the words *questionem de saporibus* are translated. "The contemporary work of Maino de Mayneriis with that title dealt with sauces for meat, fowl, fish, and so forth"; Thorndike, *History of Magic and Experimental Science*, III, 234-35, particularly p. 235, footnote 8.

[42] *Ibid.*, p. 235.

[43] Rashdall, *op. cit.*, I, 209.

[44] Gaines Post, "Master's Salaries and Student-Fees in the Medieval Universities," *Speculum*, 7 (1932), 194. The commune might also have attempted to make the university more dependent on itself rather than the non-resident students.

immunities from the ordinary courts, and even at times specified *stipendia* to the professors.[46] In order to get their university or at least part of their university back home, the citizens of Bologna found it necessary to counter these offers.

The first recorded instance of a salary is for the year 1280 when the students made the contract, but the money was to be paid by the city republic itself.[46] In 1289 two permanent chairs in the law school were endowed with salaries.[47] In 1307 salaries were given to doctors in grammar, in *fisica* and *notaria*.[48] Finally, in 1320, a salary for a professor of medicine was recorded when a *Mastri Mondino Dottore in medicine leggus in practica col salario di cento lire*.[49] From a survey of the records it appears that the highest salaries in medicine were nearly, but not quite, equal to the salaries paid to the doctors of law, but were higher than those of the professors in the arts.[50] Recipients of the salaries were at first chosen by the students at their annual assemblies each year, but the masters were not pleased with this method. In their attempts to counter this student control of salaries the professors proved successful, and by 1384-85 just three of the salaried professors in the art and medical university were elected by the students.[51]

But not all professors even at Bologna were salaried, and teachers both salaried and non-salaried at Bologna, as well as elsewhere, depended to a great extent on various fees for their income.[52] Whether the Bologna fees are applicable to other universities is a question I am not as yet able to answer. A medical lecturer received twenty Bolognese *solidi* from each student, compared to a maximum of thirty *solidi* for a grammar teacher.[53] The price of the medical lecture might be increased slightly if the scholar desired a reserved seat, but it was still under that of the grammar lecture. The lower price for the medical lecture was probably due to the fact that the medical doctor, in medieval times, was able to address a larger

[46] Sarti and Fattorini, *op. cit.*, I, part I, 401-02. A salary of 150 *librae Bononiensis* to Garsias Cannonist is recorded.

[46] Rashdall, *op. cit.*, I, 210.

[47] Sarti and Fattorini, *op. cit.*, I, part I, 410-12.

[48] Ghirardacci, *op. cit.*, part I, 504. I am not certain whether the *fisica* refers to medicine but feel it is more likely to refer to an arts course.

[49] *Ibid.*, part II, p. 56.

[50] Rashdall, *op. cit.*, I, 240.

[51] Dallari, *op cit.*, I, 4. Just two chairs were filled by student election in arts and medicine and only one in medicine: "M. Guido de Prenut is electus pro Universitate ad dictam lecturam cum salario librarum centum quinqueginta bon."

[52] Post, *op. cit.*, pp. 194-95.

[53] *Statuti*, rubric 36, 248-50, rubric 39, 253.

audence, while the grammarian was limited to a smaller audience by the nature of his subject.[54] A salaried professor was not limited to merely teaching in his subject, since a professor might receive a salary for his surgical lectures, and still give lectures in another subject, such as the practice of medicine.[55] Evidently the salaried teacher was able to benefit both from his stipend and from fees for lectures. If he needed still more money he could teach another class. It might also be true that salaries were given as an added inducement to certain professors who had wide reputations.

The right of examining candidates for the doctorate at Bologna was limited to members of the college. This *collegium* consisted of full doctors in medicine or full doctors in arts, who were also citizens of Bologna.[56] Originally the right of promotion had been enjoyed by all doctors, as it was by all masters at Paris and Montpellier, but by the end of the fourteenth century it was limited to a small circle whose numbers were deliberately restricted and whose vacancies were filled by co-option.[57] The masters of arts did not take any part in the medical examination and were apparently treated as inferior to the medical doctors,[58] perhaps because an arts degree was almost a necessity to enter the medical school. It was possible not only to obtain an M. D. degree, but special degrees also; the records indicate that there were doctors of philosophy, astrology, logic, rhetoric, grammar,[59] as well as doctors of surgery.[60] Not all surgeons at the university were holders of the doctorate nor was the teacher in surgery required to have graduated from the university, but only to have put his name on the register.[61] The medical college also gave licenses to practice surgery to persons who were not doctors of surgery.[62] Probably the guild of doctors controlled the practice of medicine in the area.

Minimum age requirements for the degrees in medicine were set by statute. The candidate for the doctor's degree was required to be twenty years of age and to have spent five years in the study of medicine. He

[54] Rashdall, *op. cit.*, I, 240.

[55] Dallari, *op. cit.*, I, 8. In 1388-89 a lecturer in surgery was "sine salario quia salariatus infra in praticha" and this same professor, Tomas de Arientis, was listed as receiving 100 *Bonon.* for the lecture in practice in *serro.*

[56] *Statuti*, rubric 48, 257, rubric 32, 445. See also Rashdall, *op. cit.*, I, 241.

[57] Rashdall, *op. cit.*, I, 212.

[58] *Statuti*, *rubric* 48, 257.

[59] Rashdall, *op. cit.*, I, 242.

[60] *Statuti*, rubric 35, 248; also Rashdall, *op. cit.*, I, 246, n. 1.

[61] *Statuti*, rubric 42, 254.

[62] *Ibid.*, rubric 24, 442-43, rubric 25, 443.

was required *in artibus fore sufficientem* before the degree could be bestowed. If he was licensed in the arts, he was able to receive the medical doctor's degree after only four years of study. As at the other medical schools, the candidate was required to have lectured on a medical work and to have responded or disputed at least twice before he was eligible for the doctor's degree.[63] The statutes do not mention any requirement for practical experience outside of Bologna such as was required at Montpellier or Paris, but undoubtedly such a practice was followed.

Bologna, unlike Paris or Montpellier, put little or no emphasis on the degree of bachelor of medicine. Students of a certain standing in all the faculties were allowed to given extraordinary lectures on permission of the rector, but evidently this was only on special occasions.[64] This was the privilege of bachelors at Montpellier and Paris, but at Bologna most extraordinary lectures were given by the professors. The bachelor in the medical university at Bologna was much less important than his counterpart at Paris or even his contemporary in the law university at Bologna.[65] There is nothing in the statutes about requirements or examinations for the degree. Perhaps this is because Bologna had a unique institution in the *repetitio* or *repetitiones*. They were given by advanced students who, after attending the classes of the masters, more or less repeated the master's lecture to the students and catechized them upon it.[66] Before one could be a *repetitor* it was necessary to have studied medicine for three years, or two years if one was a licentiate in the arts. These *repetitores* probably occupied the position equivalent to the bachelors in the northern universities.[67] The necessity for such a grade at Bologna was perhaps due to the lack of opportunity for most of the bachelors to give extraordinary lectures [68] and perhaps also is an indication that the ratio of students to teachers in the medical school at Bologna was very large.

Astrology was also included in the curriculum of the medical and arts university at Bologna.[69] Whether or not astrology was a required course for students in medicine is hard to determine, but in 1405 it certainly was not among the subjects on which lectures were to be given in the

[63] *Ibid.*, rubric 6, 432-33.
[64] *Ibid.*, rubric 73, 272.
[65] Rashdall, *op. cit.*, I, 250-51.
[66] *Statuti*, rubric 40, 253.
[67] Rashdall, *op. cit.*, I, 249.
[68] Dallari, *op. cit.*, I, passim; also Rashdall, *op. cit.*, I, 207.
[69] *Statuti*, rubric 78, 276.

medical division of the medical and arts university.[70] No indication as to its place in the medical school can be derived from the faculty lists of the late fourteenth and early fifteenth centuries, since in the published documents its position varied from being listed with the various arts to a position after the extraordinary lectures.[71] The content of the astrology course at Bologna included a great deal of mathematics, in fact there was more emphasis on this than on aspects of astrological medicine.[72]

A list of lecturers in the medical and arts university at Bologna has survived for the year 1407. In that year there were four morning (*de mane*) lecturers in medicine and five in the afternoon (*in nonis*). There were also five lecturers in the practice of medicine and two in surgery as well as others in natural and moral philosophy, astrology, logic, rhetoric, grammar, *notaria* and geometry.[73] In 1439 additional lectures were added in the practice of medicine and both morning and evening (*de sero*) lectures were given.[74] There were other slight changes during the period to 1439 indicating, perhaps, that there was a definite attempt to satisfy the demands for various types of medical courses.

The statutes of 1405 give a list of books on which both ordinary and extraordinary lectures were to be based for a period of four years[75]—probably the full course for the student who held a licentiate in the arts when he entered medical school. As a result it is indicative of what the prospective physician was required to know. In the first year, the lectures in the first morning session were to be on the first book of the *Canon* of Avicenna excluding the parts on anatomy and the chapters on the seasons of the second fen, and including only those parts of the third fen which dealt with the necessity of death, diseases of infants, where to eat and drink, on water and wine, and sleeping and waking. For the second morning session of lectures the works of Galen were to serve as the basis, beginning with *De differentiis febrium*, followed by *De complexionibus*, *De malacia complexionis*, *De simplici medicina* (except Bk. VI), and the first book of the *De diebus criticis*. Extraordinary lectures (*in nonis*) were to begin with the second fen of the fourth book of Avicenna's *Canon* followed by Galen's *De interioribus* (except Bk. II), the sixth book of

[70] *Ibid.*, rubric 78, 274-76.
[71] Dallari, *op. cit.*, I, passim.
[72] *Statuti*, rubric 78, 276-77. See also Rashdall, *op. cit.*, I, 248-49.
[73] Dallari, *op. cit.*, I, 9-10.
[74] *Ibid.*, I, 12-13.
[75] *Statuti*, rubric 78, 274-76. For an English translation see Thorndike, *University Records and Life in the Middle Ages*, pp. 280-81.

De regimine sanitatis, and the second book of his *De diebus criticis*. They were to be concluded by the lectures on the *Aphorisms* of Hippocrates but excluding the seventh "*particula*."

In the second year, the morning lectures began with the *Tegni* of Galen, followed by the *Prognostics* of Hippocrates without commentary, and his *De regimine acutorum* (excluding the fourth book) without commentary. The course concluded with lectures on part of Avicenna's *De viribus cordis*. The second morning lectures were based on the Galenic corpus including *De accidenti et morbo*, *De crisibus*, the third book of *De diebus criticis*, and the first part of *De febribus ad Glaucho*, followed by *De tabe*, and *De utilitate respirationis*. Extraordinary lectures in the second year were divided into two sections with the first section devoted to the same parts of the *Canon* of Avicenna as were given in the first year's ordinary lectures. The second section was the same as the regular lectures of the first year's second session except for the substitution of the second fen of the fourth book of Avicenna's *Canon* for Galen's *De complexionibus*.

In the third year, the first morning session lectures were given over to the *Aphorisms* of Hippocrates exclusive of the seventh particula, as in extraordinary lectures during the first year. The second morning session opened with a lecture on Galen's *Therapeutics* (Bks. VII to XIII), followed by lectures on parts of the *Colliget* of Averroes, Galen's *De simplici medicina*, *De virtutibus naturalibus*, and the second book of *De diebus criticis*. Afternoon lectures were given on almost the same works as the morning lectures of the year before, the first session being exactly the same. In the second extraordinary session, parts of Avicenna's *De viribus cordis* and Galen's *De complexionibus* were substituted for *De tabe* and *De utilitate respirationis*, but nothing else was changed.

For the fourth year, the first morning session of lectures was devoted to the same parts of Avicenna's *Canon* which had been studied in the first year. In the second session, the lectures were on book two and the first fen of the fourth book of the *Canon*, followed by Galen's *De interioribus* (excluding the second book), Hippocrates' *De natura*, and Galen's *De regimine sanitatis*. Lectures in the first afternoon session were given on the *Aphorisms* of Hippocrates, as had been the case in the preceding year's ordinary lectures. The second session was devoted to the *Therapeutics* (Bks. VII to XIII), parts of the *Colliget* and parts of Galen's *De virtutibus naturalibus*.

It is obvious that every student had an opportunity to hear the lectures

on the various books several times. This repetition probably enabled the students who had learned the required *corpus* to take courses in other fields such as surgery or astrology, just as the advanced students could attend the anatomical demonstrations. Part of the repetition was necessary to enable the students to learn the required works, but this was accomplished also through the *repetitores*. In general it might well be that the emphasis allowed the more capable students to broaden their background in medical subjects.

The contributions of Bologna to modern medicine were many and varied. It was only in Italy, but especially at Bologna and its later imitators, that surgery and medicine were still studied together in a university faculty. Where the separation of the two had occurred, as it had in France and most of the other European areas by the end of the fourteenth century, both aspects of medicine suffered. Perhaps surgery owes its place in the modern university to the Italian schools. The very organization of the Italian schools, while it had disadvantages, allowed the medical curriculum to change more easily than in the north. Bologna for these reasons deserves further study.

THE HISTORY OF MEDICINE IN DIDEROT'S *ENCYCLOPÉDIE*

RICHARD N. SCHWAB

In the history of the historiography of medicine there are few more curious productions than the Chevalier de Jaucourt's long article "Médecine" in Diderot's *Encyclopédie*.[1] Appearing at the moment when the very foundations of historical interpretation were being revolutionized to fit the secular and critical demands of the Enlightenment, Jaucourt's treatment of the history of medicine in the *Encyclopédie* reflects in the most striking way the rejection by the *philosophes* of the Augustinian, Judeo-Christian concept of historical process. And beyond that, it is an excellent example of the way the *Encyclopédie* was compiled.

In his own day the indefatigable Chevalier de Jaucourt, a doctor of medicine and a student of the illustrious Boerhaave, was recognized, along with Diderot and d'Alembert, as the third great pillar of the *Encyclopédie*, but for various reasons he has fallen into almost total obscurity. It is an ill-deserved oblivion, for without this faithful *philosophe* the most influential encyclopedia ever published could not have been completed.[2]

What is of liveliest interest to the historian of medicine in the career of Jaucourt is that he was one of the sprinkling of men trained in the medical profession who actively contributed to the intellectual and propagandistic currents of the French Enlightenment. Indeed, I can think of no other doctor, except Quesnay, who conspicuously assumed the role and title of *philosophe* in the same sense that Voltaire and Diderot were *philosophes*. La Mettrie, a colleague of Jaucourt's under Boerhaave, a practicing physician, and a denizen of the court of Frederick the Great, must be included in any list of eighteenth century physician-philosophers, but he belonged to the extremist fringe who horrified many of the enlightened as well as the unenlightened. Even by the liberals of the day he was discussed behind locked doors out of earshot of the servants.[3]

[1] *Encyclopédie ou Dictionnaire raisonné des sciences, des arts, et des métiers*, éd. Denis Diderot, 35 vols. (Paris, 1751-1780), X, 260-275.

[2] Voltaire, *Oeuvres complètes*, éd. Louis Moland (Paris, 1877-1893), XIX, 125; XX, 203, 209; XXVI, 127, 513; XL, 410-411; F. M. Grimm, *Correspondance littéraire*, éd. M. Tourneux (Paris, 1877-1882), VII, 45; R. N. Schwab, "The Chevalier de Jaucourt and Diderot's *Encyclopédie*," *Modern Language Forum*, 1957, *42*: 44-51.

[3] Carl Becker, *The Heavenly City of the Eighteenth Century Philosophers* (New Haven, 1932), pp. 31, 75.

Von Haller, another student of Boerhaave's, can be ranked as a *philosophe* only with reservations which he himself expressed against the extreme rationalism and the anti-religious tendencies of the French philosophers, although he was clearly affected by the thought of the Enlightenment and in turn influenced it.[4] But Jaucourt was the medical *philosophe par excellence* of the century. He brought to the *Encyclopédie* his enormous erudition in medicine, biology, and related subjects, combined with a vast store of scholarship in history, the classics, politics and law, and a total dedication to the reforming and critical principles of the Enlightenment.

There are a number of elements in the life of the Chevalier de Jaucourt that make him particularly interesting for the student of the Enlightenment as well as for the student of medical history. He was a titled noble from an illustrious French family. That a man of such background should have become an active *philosophe* is sufficiently intriguing, but that he should have enrolled at Leyden as a student of Boerhaave and pursued his studies until he attained a degree in medicine is a singular event in the early eighteenth century meriting examination by the social historian. Jaucourt paid his personal homage of gratitude, admiration, and, above all, affection for his old master in the article "Voorhout," where he sketched the biography of Boerhaave.[5] Spiced with anecdotes about the great teacher, the article demonstrates firsthand Boerhaave's effect upon his students, not only in medicine and related fields, but in the life of service and broad cultural attainments. When the roster of eminent students of Boerhaave is definitively tallied and evaluated (it has not been yet), Jaucourt, the *philosophe* and encyclopedist, must count as much a product of the great Boerhaave's teaching as that long list of more strictly medical men like Munro, van Swieten, Tronchin, von Haller, Albinus, Gaubius, de Haën, and Cullen, who distinguished themselves within the profession and who, indeed, dominated the history of medicine throughout much of the eighteenth century. It goes without saying that through Jaucourt's activities the *Encyclopédie* was filled from beginning to end with references to the work of Boerhaave, his doctrines, and his powerful personal influence on the medicine of the eighteenth century.[6]

No less worthy of study than Jaucourt's relations with Boerhaave are his alleged adherence to the principles of Protestantism, his cosmopolitan

[4] Preserved Smith, *A History of Modern Culture*, 2 vols. (New York, 1934), II, 110, 375.

[5] *Encyclopédie*, XVIII, 468-471.

[6] See, for example, "Chronique," III, 388; "Clinique," III, 536-537; "Cohésion," III, 607; "Empirisme," V, 588; "Fièvre," VI, 721-722; "Leyde," IX, 451; "Médecine," X, 274.

education in Geneva, Cambridge, and Leyden, his early literary activities, his publication of the first full biography of Leibniz, his relationships with Montesquieu, Diderot, d'Alembert, d'Holbach, and other leading intellectuals of the century, and his friendship from early youth with the distinguished Genevan physician, Théodore Tronchin, Voltaire's "*Esculape*" and fellow student of the illustrious Boerhaave. But these considerations must be left as introductions to the Chevalier de Jaucourt, the author of the article "Médecine" and other essays related to the history of medicine in the *Encyclopédie*, for there is more to discuss in the many-faceted life of this man and in his vast contribution to the *Encyclopédie* than can be contained in one article.

From the outset of his collaboration with Diderot, the Chevalier de Jaucourt assumed responsibility for nearly all of the articles concerning medical history and biography as well as for a large proportion of the articles about the practice of medicine, medical bibliography, diseases, medicaments, and botany. These tasks represent only a fraction of his contribution, which spanned the entire range of subjects covered in the great work. It is not surprising that even his articles on technical medical matters should have borne the marks of his wide cultivation of the humane studies as well as his advanced philosophical predilections.[7] The editors of the *Encyclopédie* commonly planted their enlightened barbs and thrusts in the most unlikely articles, in part to thwart the censor, in part because it was natural for them to register philosophical speculations at the slightest provocation. The number of times the Chevalier de Jaucourt used the various encyclopedic devices or imposed the framework of his own philosophic opinions upon the scholarly sources from which he drew is so great that it will be obvious to all who take an hour to scan his articles. But the article "Médecine" is a masterpiece of its *genre*, and it should suffice to illustrate the methods Jaucourt (and other encyclopedists in other fields) used in harmonizing medical history with the general interpretations of history and society of the greatest *philosophes* of the eighteenth century. This example of the encyclopedists' art is particularly striking because it is so neatly and easily done. A few strokes of the pen and scissors and Jaucourt entirely upsets the orthodox Christian philosophy of history contained in the principal source from which he drew and substituted another philosophy of history more congenial to the aims of the Enlightenment.

[7] For example, "Cholera-Morbus," III, 363-366; "Cachou," 505-509; "Chirurgie," 352; "Charlatan," II, 208-210; "Dystochie," V, 180-182; "Enchantement," 618-619; "Mammelle," X, 4; "Sciences," XIV, 788-789.

Edith Heischkel, one of the world's rare historians of medical historiography, has demonstrated that although the writing of medical history has usually followed the general historical concepts of its time, it has not always marched in exact step with the most advanced historiography of each age.[8] There was such a lag during part of the eighteenth century between the writings of the greatest historians, Voltaire above all, and the writings of medical historians. Historians of medicine in the late seventeenth and early eighteenth centuries had amassed a large store of accurate information about the eminent medical pioneers and their discoveries, and men like Le Clerc and Friend had learned to subject their sources to mature critical evaluation. But they were still in the toils of the Augustinian tradition, best exemplified by Bossuet's works, which demanded that the whole of human historical experience be referred to the Holy Writ and enclosed within the Judeo-Christian view of the meaning of creation, Providence, and the Chosen People. Their interpretation inevitably threw a disproportionate weight on the history of the Jews and the history of Christendom, at the same time claiming a universality which presented difficult problems of reconciliation with the growing body of information about prehistory and about the various civilizations of the East and the Mediterranean. Just as Bossuet felt constrained to call Moses the first historian, the most sublime philosopher, and the wisest legislator,[9] so Le Clerc and those who followed him in the medical historiography of the eighteenth century attributed the foundation of medicine to God, Adam, or the Patriarchs. For them, Noah and Moses were brilliant chemists. It was precisely against the Biblical historical framework and its claims for universality that Voltaire and the encyclopedists launched their own naturalistic interpretation of world history and the origins of social life, the arts, and the sciences.

The Chevalier de Jaucourt, as compiler of the material about the history of medicine for the *Encyclopédie*, was the first writer, to my knowledge, who submitted medical history to the historical philosophy of the Enlightenment. Jaucourt drew his information for the article "Médecine" largely from the historical introduction to Robert James' *Medical Dictionary* (1743-1745) translated into French by Diderot. James, who was famous in eighteenth century England for his "fever powder," was a friend and schoolfellow of Samuel Johnson. The dictionary of medicine is alleged

[8] Edith Heischkel, "Die Geschichte der Medizingeschichtsschreibung," in Walter Artelt's *Einführung in die Medizinhistorik* (Stuttgart, 1949), pp. 203 ff.; Edith Heischkel, "Die Medizinhistoriographie im XVIII. Jahrhundert," *Janus*, 1931, *35*: 67-105, 125-151.

[9] René Hubert, *Les sciences sociales dans l'Encyclopédie* (Paris, 1923), p. 42.

to include early fragments of Johnson's vigorous prose, and the same work played an important part in Diderot's career.[10] As a poverty-stricken and unknown writer in Paris, he was commissioned to translate the huge dictionary into French in 1744. Later the same publishers contracted with him to translate Chambers' *Cyclopaedia*, and this project was expanded through the genius and vision of Diderot and d'Alembert to become the *Encyclopédie* itself.

James' history of medicine was based upon the works of Le Clerc and Friend.[11] A long chain of "borrowing" such as we see from Le Clerc and Friend through James' dictionary to the *Encyclopédie*, was not an unusual phenomenon in the eighteenth century when laws against plagiarism were not yet effectively developed and when even the concept of plagiarism was not as sensitively defined as it is today. No one need be surprised that Jaucourt copied much of his material word for word from Diderot's translation of James. Diderot himself engaged in this practice, as did Johnson, on occasion, and many of the other giants of the age. It was absolutely necessary that the *Encyclopédie* should draw most of its material from preceding publications, and the editors were perfectly frank about it. What mattered was the way the materials were assembled, how they were selected, and the sort of comments or "réflexions" which the encyclopedists inserted into their articles. Their process of compilation gave the *Encyclopédie* an originality, unity, and power that no other encyclopedia has ever had. In effect, the encyclopedists poured the erudition of centuries into the mold of the Enlightenment, and in doing so they were helping to precipitate a revolution in the social sciences. In Jaucourt's article we see a brilliant example of how the effect was achieved, as well as the first indication that the historiography of medicine was being coordinated with the newest historical and sociological interpretations of the eighteenth century.

A comparison of the texts of James and Jaucourt shows from the beginning the Chevalier's sharp change in approach to the history of medicine. James began with the providential concept of the origin of medicine which dominated pre-Enlightenment histories for all the arts and sciences. Providence has given us remedies for the diseases we have merited because of our disobedience to the Creator (original sin). The school to which James belonged saw the guiding hand of Providence everywhere in the

[10] Allen T. Hazen, "Samuel Johnson and Doctor Robert James," *Bull. Hist. Med.*, 1936, *4*: 455-465.

[11] Robert James, *Dictionnaire universel de médecine*, tr. Diderot, etc., 4 vols. (Paris, 1746-1748), I, vii, xv, c.

origins of the arts, sciences, and social institutions. For the first part of his history James used the traditional historical periodization that divided all ancient history with the Flood.[12] Jaucourt completely ignored the scriptural framework in the introduction to his article. He made, to be sure, one weak gesture toward "*l'auteur de nature*," perhaps for the censor, perhaps for oratorical effect. But his concept of the origins of society and arts conformed strictly to the naturalism which the encyclopedists made famous in all parts of their work. When we are ill we mechanically or automatically attempt to cure ourselves. This is true of animals as well as men. Pain has led men to seek remedies; chance, natural instinct, and empirical observation have continued the progress of the art of healing. The origin of medicine, like the origin of society, is explained on its own principles, activated within itself.[13]

James borrowed from Le Clerc the following traditional theory used to bind the known facts of ancient history with the demands of the Augustinian philosophy of history:

> On convient unanimement que l'Egypte et l'Afrique furent peuplées par Cham fils de Noé qui transmit sans doute à sa postérité les connoissances de son tems et avec elles, ce qu'on savoit de Médecine. Misraïm, fils de Cham, passe chez les Historiens pour avoir conduit les arts en Egypte.[14]

Jaucourt passed over James' reference to the Old Testament figures entirely. Instead, he placed the origins of medical knowledge in Assyria or Chaldea, whence it passed to Egypt and on to the rest of the world. It is surprising to observe how few changes it was necessary for Jaucourt to make in James' account in order to harmonize it with the new history and the new sociology. The accumulation of historical facts and theories was already so great that it was on the point of bursting the bounds of the old interpretation by its own weight before Jaucourt took the easy step. Let no one underestimate the power of the erudition that had been amassed in western Europe since the Renaissance. Its pressure can be seen in all the historical studies by the end of the seventeenth century.

After his discussion of the earliest origins of the art, Jaucourt was able to use James' erudition on ancient Egyptian and Greek medicine without alteration until he reached the following paragraph in James' history:

> Dans ce long intervalle de tems [from the fall of Troy to Hippocrates] les

[12] *Ibid.*, I, i-ii.
[13] *Encyclopédie*, X, 260.
[14] James, *Dictionnaire*, I, ii-iii.

descendans d'Esculape ne furent pas les seules qui s'appliquerent à cette science. Joseph [Josephius] nous représente Salomon . . . comme parfaitement instruit des propriétés médicinales des productions de la nature; ce qui s'accorde parfaitement avec le caractere que l'Ecriture donne à ce Prince. Le même Auteur rapporte que la Reine d'Aethiopie, celle que les Livres saints nomment la Reine d'Orient, et qui vint à Jerusalem vérifier par elle-même ce qu'elle avoit entendu de la sagesse de Salomon, fit présent à ce monarque de la plante qui produit le baume, et que la culture multiplia cet arbre précieux dans ses jardins de Jericho.[15]

Jaucourt, of course, dropped this passage completely, simply stating that during the long period between the fall of Troy and Hippocrates the descendants of Aesculapius no doubt continued their attachment to the study of medicine. But he interpolated the following extraordinary paragraph. It makes a truly striking contrast with the passage quoted above:

Les anciens Hébreux, stupides, superstitieux, séparés des autres peuples, ignorans dans l'étude de la physique, incapables de recourir aux causes naturelles, attribuoient toutes leurs maladies aux mauvais esprits, exécuteurs de la vengeance céleste: de-là vient que le roi Asa est blâmé d'avoir mis sa confiance aux médecins, dans les douleurs de la goutte aux piés dont il étoit attaqué. La lepre même, si commune chez ce peuple, passoit pour être envoyée du ciel; c'étoient les prêtres qui jugeoient de la nature du mal, et qui renfermoient le patient lorsqu'ils espéroient le pouvoir guérir . . . ; en un mot l'ignorance où ils étoient de la Médecine, faisoit qu'ils s'adressoient aux devins, aux magiciens, aux enchanteurs, ou finalement aux prophetes.[16]

Even when Christ was in Palestine, Jaucourt continued, the Jews were apparently no more enlightened than formerly, for in the Gospels they attributed most of the diseases to demons. Not content to ignore the Jews and the Biblical tradition, Jaucourt launched a frontal attack upon them and the claims for their contributions to the history of civilization. Signs of aversion to the Jews are in no way unusual in the *Encyclopédie*. So militant were the encyclopedists for their universal concept of history that they undertook to destroy their opponents with polemical violence such as that just cited.

The remainder of Jaucourt's history, drawn partly from other sources besides James, follows the course of medicine to the middle of the eighteenth century. Read in its entirety, the essay is clearly a product of the new history, and to the best of my knowledge, it is the first example of the influence of that form upon medical historiography. Edith Heischkel, in agreement with Diepgen, found the *Wendepunkt* in medical history in

[15] *Ibid.*, I, viii.
[16] *Encyclopédie*, X, 263.

the works of von Haller which appeared in the seventies and eighties, some time after the publication of the volume of the *Encyclopédie* which includes Jaucourt's essay.[17] Although he still followed the bio-bibliographical tradition of his precursors, and although he did not command von Haller's resources of genius and sophistication, there can be no doubt that Jaucourt had made the beginnings of a reevaluation of medical history in the light of eighteenth-century historiography. But the article "Médecine" is only one fraction of the contribution that this incomparable medical-*philosophe* made to humanity. The indispensable aid he gave freely to the *Encyclopédie* remains the monument to this worthy student of Boerhaave and an honorable adornment to the history of a profession dedicated to the service of humanity.

[17] Edith Heischkel, "Die Medizinhistoriographie im XVIII. Jahrhundert," *Janus*, 1931, 35: 93-95.

AUSTIN FLINT AND HIS CONTRIBUTIONS TO MEDICINE*

ALFRED S. EVANS

On July 20, 1955, the last of a family dynasty of 6 generations of noted physicians died, bringing to an end an unbroken father-to-son inheritance in medicine that began in the American Revolution. There were four of them named Austin, the last three of whom were all noted teachers, held chairs in medical schools, and were professors at one time or other at Bellevue Hospital Medical School. Special attention will be given here to Austin Flint, 1812-1886—particularly to his contributions to epidemiology and infection.

Noted teacher, founder of two and professor in six medical schools, prolific writer, and outstanding clinician, Austin Flint, 1812-1886, was conceded to be the foremost member of his profession at the time of his death. He was honored not only in this country by election to the presidency of the New York State and the American Medical Associations, but also in England, where he was made an honorary member of the Medical Society of London and was the first American asked to address the British Medical Society. Samuel D. Gross, the famous surgeon and Flint's contemporary, honored him by stating he knew of no one so well entitled to be regarded as the American Laennec.[1]

Family Background

The American line of the family from which Austin Flint arose began with Thomas Flint who ventured to America in 1638 from Matlock in Derbyshire, England, and settled in Concord. Of Puritan stock, the Flint family is thus one of the oldest in America. The great-grandfather of Austin Flint, Edward Flint, 1733-1818, practiced in Shrewsbury, Massachusetts, in an area known as the Massachusetts Colony. His son, Austin Flint, 1760-1850, the grandfather of the subject of this study, became a practicing physician in Leicester, served as an outstanding surgeon in the American Revolutionary Army, and returned to carry on actively in his profession till over 90 years of age. The next in succession was his son, Joseph Henshaw Flint, 1786-1846, who became the best known

* Presented before the William Snow Miller Medical History Club, April 18, 1956.

[1] General References: See "References" 1-15.

physician in the Connecticut Valley. He resided first in Northampton and later in Springfield.

Early Life

Into this remarkable line, Austin Flint was born on October 20, 1812, at Petersham, Massachusetts. Little can be found to document his early life but as he was the only son of a prominent and noted physician, it could not have been beset with financial or social problems of any magnitude. In any event, it is established that he entered Amherst College from which he went on without graduating to study at Harvard College, from which he received his medical degree in 1833. He was a private pupil of James Jackson, Sr. and studied under Jacob Bigelow and John C. Warren while at Harvard.

On graduation from Harvard, aged 21, Flint entered into medical practice in Northampton and Boston. It is notable that Flint developed as the product of American medical education and, unlike most famous physicians of this time in the United States, did not study abroad. Through his teachers at Harvard, however, he was in close touch with the brilliant French school of the day and early pursued the statistical method and habit of case recording of the eminent Parisian clinician, Louis. In later years, Flint indeed advised against a French education because of the temptations of the life there and the difficulty of learning French.

In 1835, at 23, Flint married Anne Skillings, daughter of N. W. Skillings of Boston. She was a faithful and loyal helpmate through his entire lifetime. She bore him a son, also named Austin, in Northampton March 28, 1836 who was to achieve fame as a teacher, physiologist, and psychiatrist. More of him later. 1836 was also eventful for the Flint family because they moved to Buffalo that year. The reasons for the Buffalo move are not clear except that it offered the opportunity and challenge of a new and growing area. Certainly Buffalo was no great center of medicine at this time, having no medical school and meager clinical facilities. In addition, young Flint, then 24, was unknown and had no friends. Nevertheless, he settled down to practice, observation, and study. These must have been busy years and even, perhaps, meager ones. It was four years later, in 1840, that his first paper, an account of 24 cases of rubeola, was published in the *Boston Medical and Surgical Journal*. Three reports followed in 1841 dealing with cases of sudden death, an important contribution to the use of quinine in intermitting fever, and a paper on dyspepsia connected with the mind that was a forerunner of psychosomatic medicine and of studies of functional gastroin-

testinal disorders. Flint's early interest in and investigation of infectious diseases and his appointment as health officer in Buffalo in 1842 are significant in that they represent the start of many important papers on infectious disease and epidemiology. The labors and reports of the young clinician did not go unheeded, and in 1844, at 32, he was called to Chicago as Professor of Medical Theory and Practice at Rush Medical School. The stormy city was not to his liking, however, and after one year he returned to Buffalo. Indeed, perhaps he had a prescience that Chicago would not please him since he had kept his Buffalo residence. On his return he helped found the *Buffalo Medical Journal* in 1845. He edited it for ten years with marked ability and signal success in which his own frequent contributions played no little part.

Two years later, in 1847, he became one of the three founders of the Buffalo Medical School. The establishment of a school of medicine in Buffalo had been contemplated since 1830 but was delayed by the financial crash of 1836. The official founding occurred ten years later, on May 11, 1846, and called for the establishment of a university rather than only a medical school.

The original council consisted of a faculty of seven physicians, sixteen stockholders, the mayor of the city, and the chancellor. This last was Millard Fillmore who served in this capacity for 28 years, continuing his office even during his tenure as President of the United States. Other founders besides Flint were James P. White and Frank H. Hamilton.

At 35 years of age, Austin Flint became the first Professor of the Theory and Practice of Medicine, a position he held till his departure from Buffalo in 1852. A year before the establishment of the University of Buffalo, Flint served as delegate from the Buffalo Medical Association to the National Medical Convention in New York. He was appointed a member of a committee to study the requirements for the degree of M. D. under Dr. Isaac Hays; this committee adopted ten resolutions for bettering medical education including extension of the lecture period from four to six months, a two-year attendance requirement at lectures, a three-year period of medical studies with a period of three months devoted to dissection, and an increase of the number of professors in all medical schools to seven. These resolutions were presented in 1847 at which time the organization changed its name to the American Medical Association. That such reforms in education were needed is clear. Even as late as 1880, a newspaper reporter was able to purchase a number of degrees including two M. D.'s, two law doctorates, and one master in electro-therapeutics.

Activities as a Teacher

As a teacher in medicine and an astute clinician, Flint seized the opportunity offered him to make his own contributions to medical education. An important and valuable feature in his method of teaching was to require students to make an independent, thorough, and systematic study of cases. As Dr. Flint himself said, "The ability to observe is not a natural gift nor does it accompany as a matter of course the acquisition of knowledge that one acquires from reading or didactic lectures. It is an art to be acquired." Samuel Gross (5) has commented on Flint's ability as a teacher as follows, "Tall, handsome, and of manly form with a well modulated voice of great compass, he is a lecturer at once clear, distinct, and inspiring. During his hour in the classroom, no student ever falls asleep." Carpenter (3) notes that his lectures had graceful delivery, simple and expressive language, and systematic presentation, but the reservation is made that "had his lectures possessed less of culture and more of the rugged and forceful style, they would have been more effective." Beside his teaching, Flint was also writing papers, mostly concerned with infectious diseases, especially typhoid, cholera, and continued fever, which will be discussed in more detail later.

In 1852 he accepted the chair of Professor of Medical Theory and Practice at the University of Louisville where he began a friendship with Dr. S. D. Gross that lasted all their lives. Their friendship was made especially fast through their sons, both of whom studied medicine there, attended their fathers' lectures, and later became professors of medicine in New York City in the schools where their fathers had held the chair. The year 1852 was made notable for Flint also by his receiving the American Medical Association prize for his essay on "Variations in Percussion and Respiratory Sounds." Papers on valvular diseases of the heart, physical diagnosis, dysentery, continued fevers, and pleurisy appeared in the same year.

Heringhaus (14) has commented on this period in Louisville as follows: "It has been stated that few successful practitioners have moved so frequently but everywhere he went he was able to make his presence felt by his true worth." The exception to this seems to have been his position as Professor of Theory and Practical Medicine at the University of Louisville from which he was removed in 1856, according to Charles Caldwell "not on account of incapacity but on account of want of sufficient exertion and self-training." In any event Flint moved back to the chair of Pathology and Clinical Medicine in Buffalo in 1856. Here he busied himself

with studies on tuberculosis, conservative medicine, pneumonia, and heart sounds, the last of which again won for him the AMA prize in 1859. Indeed he was so busy at this point that he turned down an invitation to lecture on the theory and practice of medicine at Harvard. We conceive of our present medical faculties as being peripatetic, but at this time Flint managed to outdo most of us. Besides his professorship at Buffalo, he was also Professor of Clinical Medicine at New Orleans Medical School and attending physician at Charity Hospital, a position he held until 1861. Just how this was accomplished is not completely clear. He appears to have devoted his winters to New Orleans and his summers to Buffalo. It also appears that his clinical acumen did not suffer during this time, for in 1859 at Charity Hospital he discovered the murmur that bears his name. This was a murmur in the mitral area in a patient with marked aortic insufficiency who had normal mitral values at autopsy. The case was published in the *American Journal of the Medical Sciences* in 1862. Flint was unhappy about proper names being attached to signs saying, "so long as signs are determined from fancied analogies, and named from there or after the person who describes them, there cannot but be obscurity and confusion."

In 1860 Flint moved permanently to New York City. In going there at the age of 48 he was casting his gauntlet to the idea that success in that city was possible only to a young man with proper local background and influence. Failure was freely predicted and active opposition encountered, and some of his younger rival consultants never forgave him his success. He began his career in the great metropolis as Professor of Pathology and Practical Medicine at Long Island College Hospital and in the same year helped establish the Bellevue Hospital Medical College where he became its first Professor of the Principles and Practice of Medicine. According to the record Flint thus held four professorships in the period 1858-59; at Buffalo, New Orleans, Long Island, and Bellevue. In 1868 he discontinued his association with Long Island College. Flint remained in New York the rest of his life and for 25 years was hospital physician, teacher, textbook author, and consultant.

Carpenter (3) has described his physical appearance thus: "Flint was a large man, with a full voice, and with the enthusiasm of an expert employed mallets, pleximeters, and stethoscopes, and spoke with the familiarity and intonation of a public teacher in medicine . . . with a beaming face, flashing eye, and nervous move, he pointed out the peculiarity of a percussion note, a pulmonary râle, or a cardiac mumur." He was always solicitous concerning the comforts and feelings of his patients.

"Gentlemanly deportment was his constant attendant" and "his dignified presence held in restraint the vivacious tendency of a medical class." In another description by Heringhaus (14) it is noted that he "had a powerful and symmetrical body, a large brain, brilliant, clear, dark hazel eyes, regular features, a very cheerful expression, was quick in motion, had well preserved and harmoniously working organs. He was a systematic, diligent student, a steady professional worker, fond of proper recreation, punctual in his engagements, self-sacrificing, a wise counselor to the rich, and a true friend to the poor. In his home Dr. Flint was the considerate, indulgent, and kind husband and father." This and other descriptions give the impression that Dr. Flint was indeed an imposing man both physically and mentally. His own son had great respect and admiration for him as is obvious in the following quotation from Austin Flint, Jr.:

> During his professional life he encountered soldiers in camp and in barracks; the rich and the poor; those affected with diseases incident to lives of ease and luxury and paupers in hospitals; the pioneers of western New York and the inhabitants of the metropolis; patients in the wards of the Alms House and hospitals of Buffalo, of the Marine Hospital in Louisville, Ky., the great Charity Hospital in New Orleans, La., the Bellevue Hospital, the Charity Hospital, the dispensaries and similar institutions in the City of New York; cases observed in the experience of a quarter of a century as a general practitioner, and of more than another quarter of a century as a consulting physician, including epidemics which have occurred in this country within the last fifty years.[15]

Later Years

This then was Austin Flint, circa 1870, Professor of Medicine at Bellevue Hospital Medical School: a man who worked hard and late and whose contributions were perhaps due in part to the fact that he wrote often until one or 2 o'clock to help his insomnia. In addition to innumerable articles, he completed a textbook on the practice of medicine, a work that was widely adopted as a text and reference book and which was destined to go through seven editions and sell 40,000 copies. In addition he published a book on the pathology, diagnosis, and treatment of diseases of the heart which went through two editions. He was active not only in the clinic and at the writing table but also in the fellowship of men and in the organization of medical practice. In 1872 he was elected president of the New York Academy of Medicine. He presented many papers before this organization and was its staunch supporter and leader for many years. In 1882 he resigned in protest against an action taken on the ethical code. Since this occasioned much bitterness and discussion

among some of his associates it is perhaps important to review the circumstances that led up to it as they are described by Heringhaus (14).

In the AMA meeting of 1847, a code of ethics was adopted by unanimous vote of all present. It was specified that any local medical society not adopting this code could not be recognized as a member of the AMA. All went well from 1847 to 1882 when the New York Medical Society decided to adopt a new code of ethics not in accordance with that of the AMA. Dr. Flint was a member of this society, (the New York Medical Society) and was one of those voting against the new code. Dr. Flint was opposed to this new code as it automatically barred the New York Medical Society from further membership in the AMA. As a consequence of his resentment he resigned from the New York Medical Society, and the following year was instrumental in organizing two other local societies, namely, the New York County Medical Association and the New York State Medical Association in both of which he was active until his death. One of the aspects of the AMA code about which Dr. Flint was particularly concerned, and which he wished accepted, was the rule that no one should be called into medical consultation who was not in the medical profession. In his presidential address to the AMA in 1884, Dr. Flint quoted as follows: "But no one can be considered as a regular medical practitioner or fit associate in consultation whose practice is based on an exclusive dogma to the rejection of the accumulated experience of the profession and of the aid actually furnished by anatomy, physiology, pathology, organic chemistry."

With this in mind, Dr. Flint felt that members of the homeopathic, eclectic, botanic, and other schools of the sort did not qualify as practitioners because they rejected cumulated experience of the medical profession and the aid furnished by the various sciences mentioned. There was a good deal of dissension from various sides as to the code itself and as to whether the code should remain unchanged, as Dr. Flint wished it to be. It is said that the bitterness over accepting or changing the code of ethics occasioned Professor Flint much pain and was responsible for many of the unhappiest days of his life.

Dr. Flint achieved both national and international recognition during these years. He was the principal orator at International Congresses held in Philadelphia in 1876, London 1881, and at Copenhagen in 1884. He was scheduled for the presidential address at the one held in Washington in 1887 and for an address before the British Medical Association in 1886, the first American to be so honored. His death prevented his fulfilling both these engagements. He received an honorary degree from

Yale in 1881 and was made a corresponding member of the Academy of Medical Sciences, Palermo. In 1883 he was elected president of the American Medical Association for the year 1884. In his presidential address he reviewed the formation of the AMA 38 years before in which he had been instrumental. He reviewed the important discovery of the tubercle bacillus by Koch and the suggestive demonstration of the specific organisms of pneumonia, typhoid, malaria, and epidemic cholera. He endorsed the prediction of Huxley that some molecular mechanism would be found which, when introduced into the body, would find its way like a torpedo to certain cells and destroy them, leaving others unharmed. He spoke of various ways of improving medical education and discussed at length the code of ethics, its excellence and the need to maintain it unchanged. Lastly, he pointed out the obligation of the medical profession to give the public its side of the story.

Austin Flint died suddenly and unexpectedly of cerebral apoplexy on March 13, 1886. Two or three weeks before, he had been called to Tarrytown on consultation and returned to find much business presure. He was tired yet had to give a lecture at Bellevue. Several days after this his friends noted that he was depressed and nervous. Nevertheless, he gav his last term lecture and followed it by a quiz session. He then went to a faculty meeting that lasted late. He returned home where he had a cerebral hemorrhage characterized by pain and an agonizing cry, and followed 14 hours later by death. Dr. E. G. Janeway was called in attendance and he notified Flint's son; Dr. Isaac E. Taylor and Dr. W. L. Lusk were also in attendance. The funeral was held in Christ's Church, New York City. Many obituaries praising and honoring Flint appeared in journals in this country and abroad.

General Contributions to Medicine

The contributions of Austin Flint to American Medicine were many indeed. He filled some 16,922 folio pages with notes, wrote and rewrote several books, and published over 240 articles from 1840 to 1886 covering almost every conceivable aspect of internal medicine (16). His contributions to the field of physical diagnosis and tuberculosis were carefully reviewed by Landis (15) in the *Bulletin of the Johns Hopkins Hospital* in 1912 and Dr. William S. Middleton (17) discussed his place in the history of physical diagnosis in an excellent paper presented before the Wisconsin Medical History Seminar on January 23, 1924. The paper was entitled "A Biographic History of Physical Diagnosis." Briefly,

Flint's most notable work in the field was refinement, elaboration, and classification of the technique and results of ideas introduced by Auenbrugger and Laennec. He emphasized the importance of pitch, elaborating what is called Flint's law—"An elevation of pitch always accompanies diminution of resonance in consequence of pulmonary consolidation. In other words, dullness of resonance is never present without the pitch being raised." He described the different types of respiration, recognized the importance of pitch in whispered voice sounds, and observed that fluid in chest cavities changes its level with alterations in position. He also noted that liver dullness is eliminated by air subsequent to perforation of stomach or intestines. The heart murmur which bears his name has already been mentioned. In tuberculosis he emphasized early recognition, the fact that many recover, and the importance of early treatment. He said, "the prospect of exerting a control over the disease and diminishing its tendency to a fatal issue is in proportion to its early recognition." He viewed the effect of climate in a rational way—ascribing to it no magical powers for healing but only that the patient moving to better climate got outside, away from the cares of business and home, and with this had the moral expectation of being benefited by climatic influences. In 1875, he presented a monograph on "Phthisis" with an analysis of 670 cases. He was peculiarly concerned with the natural history of disease, especially untreated disease, and this was one of his special contributions to leaven the therapeutic enthusiasm of the day. In this way he studied untreated cases of a number of diseases which emphasized the natural tendency to recovery whether anything was done or not, and in some instances in spite of what was done. His publications of this type covered 75 cases of untreated tuberculosis with recovery, 10 cases of acute dysentery without treatment, and the natural history of Bright's disease and articular rheumatism. He did not accept impressions but carefully analysed his own cases before he arrived at conclusions. Some idea of the magnitude of his work is given by mentioning some of the case studies: 24 cases of rubeola, 164 of continued fever, 47 of chronic pleurisy, 49 of dysentery, 133 of pneumonia, 46 of hydroperitoneum, 102 of Bright's disease, and 640 of tuberculosis.

Contributions to Epidemiology

The status of epidemiology around 1800 centered around three concepts: 1) contagion; 2) miasms; and 3) epidemic constitution of the atmosphere. Contagion was universally admitted for measles and smallpox, with hesitancy and with qualifications in typhus, and almost not at

all in typhoid, malaria, yellow fever, and plague. La Roche devoted 30 pages in favor of contagion, 330 pages against it in his 1855 monograph on yellow fever. A few voices in the wilderness, those of Fracastorius, Cardanus, and Kirchner, had long before brilliantly espoused the concept of contagion, but the general trend of the 19th century was against it. As a matter of fact it would have been difficult to defend contagion in certain diseases if one weighed the available evidence carefully at a time when there was still no knowledge of bacteria, of the healthy carrier, or of insect-borne disease. Dr. Erwin Ackernecht (18) has brilliantly and thoroughly reviewed the status of the contagionists and anticontagionists from 1821 to 1867 in his Fielding H. Garrison lecture of 1948.

This then was roughly the state of affairs in Flint's early days. In November, 1843, he was called to investigate an outbreak of typhoid which occurred at North Boston, Erie County, New York. It must be recalled that this was 6 years before the first publication of John Snow's 31 page pamphlet on the transmission of cholera, and that this was eleven years before the 1854 Broadstreet pump outbreak of cholera on which Snow based most of the circumstantial proof of the transmission of cholera. William Budd's first work on the transmission of typhoid fever did not reach print until 1856 when it appeared in the *Lancet*, although he claims to have been teaching that typhoid was water-borne to his Bristol students since 1839. His major work did not appear until 1872, and Flint is said to have known nothing of this until 30 years after the Boston outbreak, although I can find mention of Budd's work in the 1866 edition of Flint's textbook. In any event, Flint's original observations were made unencumbered by preexisting knowledge of water-borne disease.

The initial report appeared in the *American Journal of the Medical Sciences* in 1845 (19), and Flint republished the data several times afterwards, each time with a new analysis. One of these appears in his book entitled *Clinical Reports on Continued Fevers* which was written in July, 1852, and another in his *Textbook on Medicine*, in the edition of 1866. In these reports Flint's description of the outbreak included the following facts: North Boston, a small community of nine families comprising 43 individuals, was located 18 miles from Buffalo. During the period from October 19th to December 7th, 1843, twenty-eight of the forty-three individuals were attacked, and ten died. The first case occurred in a young visitor who was on his way west from Warwick, Massachusetts, and who stayed at Fuller's tavern where he fell sick on September 21st. He died on October 19th. Subsequent to this, eight cases occurred in Fuller's, the innkeeper's, own family, the first one beginning October

14th. Two members of his family died. Of six other families within ten rods of Fuller's tavern, all but one were involved with the same apparent condition. All used Fuller's well for their water. The one family who escaped, named Stearns, had been carrying on a bitter feud with Fuller so that they were not permitted to use the common well and had dug one of their own. Two other families at some distance from Fuller's tavern, who did not share the water supply, also escaped. The fact that Stearns' family remained well did not escape the attention of the townspeople who, in fact, accused him of poisoning the well because of his antagonism to Fuller. Since some of the members of the sick families were chargeable to the county, the superintendent of the poor was anxious to investigate the story of the poisoned water. He therefore called Dr. Flint from Buffalo to evaluate the situation. Dr. Flint visited North Boston November 5th, spent eight hours there, visiting the bedside of a number of patients and performing one autopsy in which he found evidence which he interpreted as diagnostic of typhoid fever. The local physician, Dr. Kemp, put ten additional case histories at Flint's disposal. Flint evaluated the situation carefully, decided that the disease was indeed typhoid fever, that it had been introduced into the community by the stranger who was visiting from Warwick Massachusetts, and that the spread of the disease through the community was due to spread by contagion. He wrote to a minister in Warwick, Massachusetts, and learned from him that the young visitor while not sick at the time that he left home, had indeed been in an area where a mild illness, presumably typhoid, had been known to occur around this time.

In the initial report in 1845, Flint states: "The stranger left home with the germicidal principle of typhoid in his system, it was aggravated by fatigue of journey and was made more severe and perhaps more communicable, and the subsequent cases were due to infection or contagion introduced into the closely congregated community."

Flint submitted water from the well to some chemists in Buffalo for analysis. They reported that the water was pure except for the presence of sugar. This was finally explained by the fact that the jug in which the water was collected had been used previously to contain molasses. In his 1852 recapitulation of this story, Flint spends more time trying to explain why the Stearns family, as well as the other two families, escaped contracting the disease. He was able to ascertain that all families living in the area around Fuller, in which the illness had occurred, were poor to destitute economically, except the Stearns family. The two families at a distance, the Barley and Sprague families, were also comfortably off. He

felt that these three families probably escaped because they were better nourished and therefore more resistant to the germ, and also because the Stearns family at least had no social intercourse with the Fuller family. This difference in economic circumstances among the families was in a way unfortunate, as it misled Flint and distracted his attention from the idea that water might have been the source of the outbreak. The local townspeople, however, were much surer than Flint that the water had been poisoned. Indeed, they claimed that the water that had been submitted to the city chemists for analysis was not the water from the well but had been changed in transport. Poor Stearns, who was the subject of all these accusations, finally instituted legal action for libel and was awarded a hundred dollars.

At the end of his original paper Flint says:

> It remains, in conclusion, to notice the belief which was current in the settlement and neighborhood where this epidemic occurred, that the public well had been poisoned, and that the disease was due to this source. . . . We have no grounds for this supposition that any poisonous substance capable of being introduced into water, would produce an epidemic fever of any type. . . . If the matter had any real or important connection with the etiology of the disease, it would be proper to investigate the correctness of this suspicion, but, under existing circumstances, it seems quite unnecessary to enter upon any discussion respecting it. (19)

Thirty years later, at the first meeting of the American Public Health Association, Flint presented a paper entitled, "Relations of Water to the Propagation of Fever."(20) At this time he was familiar with the demonstrative proof published by Budd of the transmission of typhoid fever through contaminated water. On learning of it, he had gone back to his notes on the North Boston epidemic and written to the old family physician who was still practicing in the area. In this way he made a complete and comprehensive story of the outbreak, which was the subject of this presentation. Flint states, "It is perhaps the most remarkable experience on record as embracing a combination of circumstances proving, in the first place, the communicability of typhoid fever and, in the second place, rendering vastly probable, if not certain, the communication by means of a contagium contained in drinking water. The facts were recorded and published by me without any idea that water was the medium of the diffusion of the disease." Through a letter to Dr. Barber, a local practitioner, Flint found that a privy, attached to the inn where the stranger stayed, was three or four yards distant from the well, and he recollected that the contents were allowed to accumulate. The well was by the wayside and supplied the inn, the stable, and the neighbors. Hence,

Dr. Flint concluded that the well had been contaminated by the dejecta of the Massachusetts traveler and that the patients had all been infected by drinking water from the tavern well. On this basis, he spoke of the prevention of typhoid by the isolation of cases, the disinfection of dejecta, and careful protection against pollution of water. In his book, *Public Health Administration in the United States*, Smilley (21) states in relation to the 1873 paper:

> If these early observations on the North Boston epidemic by Dr. Flint had been given the attention they deserved; if the simple, but clear-cut and logical, analysis of the mode of spread of typhoid fever that Dr. Flint developed, and the conclusions and recommendations that he presented had been understood and accepted, it all seems quite possible that many subsequent water borne epidemics of typhoid fever that devastated the United States during the following fifty years might have been avoided.

This was not Flint's only contribution to the problem of typhoid fever. In 1850, he published a paper analyzing fifty-two cases of typhoid (22), on which the standing committee of the Association of Medical Literature made the following comment, "We cannot, in justice to the labor and talent displayed, speak of it merely as affording a rigid, comprehensive analysis of the subject. As an exposition of the clinical facts of the disease, as witnessed in this country, as an American work on fever rich in material and admirable in execution, it is one of the best contributions ever published in the United States." In another contribution made at the New York Academy of Medicine, Flint discussed the problem in connection with the diseases of the Centennial Exposition and this is published in the *Medical Record*, 1877 (23). The group was considering the question whether visitors had contracted typhoid fever while attending the exposition. Flint made the following suggestions: (1) That the total number of cases and the incubation period should be determined, and the latter should not be an interval of over two weeks. He emphasized the transmission of the disease through specific products which were present in the alimentary canal of attacked individuals and which were present in the stool, and that the problem of communicability was therefore direct. (2) That transmission may have been through drinking water, and he discussed the problem of quantitative contamination. (3) That the general incidence of typhoid in the city of Philadelphia, in which the Exposition was held, should be determined as a baseline. There should then be an investigation to determine whether all those who became sick had drunk the water, and to consider that the same water might be present in beer,

milk, and other products that had been served at the Exposition; and, finally, to try to assess the importance of accessory factors such as overexercise, mental excitement, errors in diet, as related to the incidence of typhoid in the visitors. Finally, in one additional paper on typhoid fever, which was presented as a clinical lecture in 1880, the problem is brought to a level of familial epidemiology by the discussion of a case of typhoid which Flint had examined and in which he considered the problem of the sewers in the home, and the fact that another case existed in the same household (24).

Other Studies on Infection

Many other studies of infectious diseases were made by Flint, notable among them his series of reports during 1850-1852 on types of continued fevers, with an analysis of 164 cases (22). He reported several studies on acute dysentery, the first of which appeared as a series of papers in the *Buffalo Medical Journal* in 1853 (25). This was the careful analysis of 49 cases which included not only the clinical aspects of the disease but also epidemiologic features such as occupation, season, year of occurrence, previous health of the individual, probable causation, etc. This was later published as a separate book of 90 pages. Unfortunately, the entire edition was destroyed by fire. Another paper on dysentery appeared in 1875 under the title "A Contribution Toward the Natural History of Dysentery," consisting of a report of 10 cases observed without medical treatment (26). In this paper he pointed out that in temperate climates, untreated dysentery tends to recovery and that since it is self-limited, it was unaffected by modes of therapy then in use.

Dr. Flint also had his say on the problem of contagion. In a paper appearing in 1874 (27), he concerned himself with what he considered to be the logical proof of contagion. To him, this proof had four facets: (1) immediate contact as in syphilis or gonorrhea, (2) impalpable emanations which are diffused and retain power within certain areas called the infecting distance (and which to us probably would represent droplets), (3) by fomites such as bed clothes, bedding, etc., i. e. indirect or environmental spread, and (4) by a virus contained in the excreta with which water is polluted. In this list insect-borne disease and the concept of the healthy carrier are omitted. It does not seem necessary to analyze this paper in detail since Flint was faced by the same general problem as everyone else, in that biologic agents of disease had not as yet been demonstrated. Therefore, no conclusive logical proof could, in fact, be made. During this period Flint commented on diphtheria, pointing out that this

was a separate disease from pseudo-membranous croup (28). He also presented the view that pneumonia is an infectious fever or constitutional disease and not only an inflammation of the lungs. The pneumonic lesions in the lungs would play the same role, comparatively, as the intestinal lesions in typhoid fever. He felt that this was important from the standpoint of the therapeutic approach (29).

In 1882, Koch discovered the tubercle bacillus and this fact was immediately accepted by Flint, even though many of his contemporaries were slow to recognize it and many fought against the concept of the bacterial nature of disease. An episode is described by Fleming in his book on Welch and the rise of modern medicine (30). This relates to "the elder Flint who was an enthusiastic 'bacterian' at a time when men of his age and standing in America tended to be either skeptical or hostile. One morning in 1882 Flint came bounding up the stairs in Welch's house, waving a newspaper and crying to the dazed Welch, still in bed sleeping off a late night in the dead house, 'I knew it, I knew it!' Koch's great discovery of the tubercle bacillus had been announced in the papers." In recognition of the importance of Koch's work, Flint added a separate addendum to his *Principles and Practice of Medicine* dealing with the importance of this discovery. In 1884, a paper by Flint appeared on "The Parasitic Doctrine of Epidemic Cholera" (31). This had been written upon his return from a visit to London where he had seen a slide prepared by Koch showing the cholera bacilli. He accepted Koch's demonstration and its bearing on the causation of cholera and stressed that these facts best fitted in with what was known of the disease. He spoke of the epidemic of 1866-67 in New York City in which he had played a part. Thorough disinfection had been carried out in all cases, sanitary inspectors were on constant duty, and soldiers were on hand along with wagonloads of disinfecting material, like a fire department, to stop the outbreak. So it was that although 362 cases occurred, there was no direct spread beyond the house where a single case occurred. Flint recognized the importance of the control measures employed and said, "My belief is that never before nor since in any country have measures for the prevention of epidemic cholera been observed so scientifically, so thoroughly carried out, or so successful in the results as those employed by the New York Board of Health. . . . They should be cited throughout the world as evidence that cholera is a disease which may be stamped out by efficient sanitary measures, efficiently employed. . . . I believe firmly that should this disease be again introduced into this country, to decide whether or

not it shall prevail as an epidemic lies within the power of preventive medicine." So much for Flint's contributions to an understanding of the epidemiology of infections and the nature of infectious disease.

Contributions in Certain Other Areas

Flint had an understanding and recognition of the interrelations between mind and body which is now called by some the field of psychosomatic medicine. In a paper in 1841 he discussed the problem of dyspepsia and the mind, and through his life was aware of the influence of the attitude of the patient on his disease and of the beneficial and salubrious effect on the patient of the attention of the physician (32). In 1884, he presented a paper on the dietetic treatment of dyspepsia in which he pointed out that dyspepsia should be distinguished from indigestion, the former being not necessarily associated with disturbances of digestion but only with difficulty with it (33). He reemphasized the thesis of his earlier paper that disorders of digestion may be produced by emotional problems. The group most commonly afflicted, Flint pointed out, were lawyers, doctors, clergymen, students, and artists. These people, he said, become dyspeptics who study from the best of motives how to live so that "digestion shall wait on appetite, and health on both." In other words, Flint was concerned with people who were becoming very select and concerned with dietary problems, and he encouraged them to eat what and when they pleased. He thought that "if the stomach behaves perversely like the mischievous school boy, the patient should conquer the stomach and not the stomach the patient." Another of Flint's contributions was his healthy and rational attitude toward therapeutics. This is brilliantly discussed in a paper entitled "Remarks on Medicinal and Non-Medicinal Therapeutics" (34), which he wrote in 1884. This paper could be read profitably by today's medical student and practitioner. He writes:

> I need not say that to withhold drugs in the treatment of disease is as important an exercise of professional judgment as to employ them. Nothing is easier than to prescribe drugs. On the other hand, to refrain from their use may require not a little firmness and independence. An ignorant or weak practitioner therefore may be tempted to pursue a medical treatment in opposition to his judgment or to cover up his lack of knowledge.

He realized that there is a need for health education so that the public will be content, indeed joyful, when a drug is not indicated and when it will not be necessary to give placebos for moral effect. The following words also are prophetic and indeed not yet fully realized: "The time

will come when the physician will not be regarded wholly as a therapist, but as a medical counselor whose functions embrace the prevention not less than the treatment of diseases."

Subsequent Physicians in the Flint Family

The Flint line of physicians did not end with the death of Austin Flint in 1876. Indeed, a distinguished son and grandson followed him, both named Austin. The first of these, Austin Flint, Jr. (1836-1915), graduated from Jefferson Medical College in 1856 and, because of research done during his school studies, was appointed Professor of Physiology at the University of Buffalo immediately on graduation. He later held similar posts at New York Medical College, at Bellevue Medical College, and at Cornell University Medical School. He did much research in physiology, wrote a 5 volume work on the physiology of man, a textbook on the physiology of the nervous system and a textbook on human physiology. He was interested in mental disease and was an eminent medical witness. Like his father, he was prominent in medical societies and organizations.

The last Austin Flint was born in 1862 and died June 20, 1955. Like his father and grandfather, he was a professor at Bellevue Hospital Medical College. His interests were in obstetrics and gynecology and he held the chair in this speciality at New York University from 1895 to his retirement in 1932. Because he had no sons the Flint dynasty of medicine came to an end with his death at the age of 87.

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NOTES AND COMMENTS

THE PLAGUE OF ATHENS

SIR WILLIAM MAC ARTHUR

The theory that the Athenian pestilence was an epidemic of poisoning by ergot has been revived once more, this time by P. Salway and W. Dell.[1] They reject my identification of it as typhus[2] because, they argue, there is no record of a similar calamity in ancient Greece, and typhus could not occur in the form of a single isolated epidemic. This will seem a hard saying to all who have studied the history of epidemics, and if the argument of these authors had any validity it would be equally valid against their own theory of ergotism; for it was a characteristic of epidemics of ergotism to recur in the same locality time after time.

An ancient epidemic can be known to us today only if it was observed by someone who was interested enough to chronicle it, and if his account, unlike many others, has happened to survive. For example, an outbreak of louse-borne relapsing fever in Thasos is unmistakably described in the Hippocratic Collection; but there is no known record of any later epidemic until A. D. 550.[3] After that, there is a still longer silence until the 18th century. Therefore, according to Salway and Dell's argument, the isolated epidemic in Thasos (isolated, that is, as regards records) could not have been relapsing fever—which certainly it was. This infection is shared between man and his parasite, *Pediculus humanus*; there is no other reservoir of infection, vertebrate or invertebrate, so that the disease could not become temporarily extinct and then arise later by some form of spontaneous generation. It must have gone on, with persisting foci of infection ready to spread whenever the necessary conditions conjoined, as in the later epidemic waves of the 18th, the 19th, and the present, century.

Again, an epidemic of poliomyelitis is briefly but unmistakably recorded in Ireland in A. D. 707, as "the pestilence that is called the lameness" (*baccach*), an entry that could refer to no other disease. Yet no further outbreak of the infection is heard of anywhere until 1789, although it

[1] *Greece & Rome*, 1955, *2*, No. 2, p. 62.
[2] *Classical Quarterly*, 1954, *4*, Nos. 3 & 4, p. 171.
[3] *Brit. M. Bull.*, 1957, *13*, No. 2, p. 146.

must have continued through all these centuries—not unnoticed, for no one could fail to see the trail of crippled victims it leaves behind, but unrecorded—or if anyone was at pains to note what he saw, his account has not come down to us.

By a fortunate chance, Storey, the chaplain of Gower's regiment, happened to be on the spot to describe the terrible epidemic of typhus that, with dysentery, wiped out half of the Williamite army in Ireland in 1689.[4] Among much else he tells us that some 1,700 men died in Dundalk; that of 2,000 men shipped from Dundalk to Belfast, less than half of them came ashore; that 3,762 men died in the Great Hospital of Belfast alone; and that several troopships lay in Carrickfergus harbour with "all the men in them dead." Like Thucydides, the chaplain noted the gangrene of the extremities—especially frequent in war typhus—which in itself is sufficient to diagnose typhus from all other epidemic fevers. He mentions sufferers "that had their Limbs so mortified in the Camp, and afterwards, that some had their Toes, and some their whole Feet that fell off as the Surgeons were dressing them." Had it not been for this tireless and devoted man, we should know nothing of all this, just as we should know nothing of the typhus epidemic in Cumberland's army after Culloden, had Pringle not been there to see it.

In the same way the Athenian plague is well known because Thucydides saw and described the outbreak. Had he not been in Athens, had he died in his attack, or had his manuscript been lost, we should know no more of this epidemic of typhus than we know of many others that certainly must have occurred in circumstances that later provoked outbreaks of the disease with such persistency that—until recent years—probably more men died of typhus in European wars than of all other diseases, and in all assaults of the enemy, put together.

Thucydides' quoted statement that the disease was new, means nothing. Epidemic maladies that recurred after some long interval were commonly supposed to be "new." The English epidemic of malaria of 1661-64 was a new fever to Pepys, although malaria had been present in England since Anglo-Saxon times at least; so too, in the Irish famine of 1846 when relapsing fever invaded parts of the country where it had not been seen since the famine of 1816, some doctors (of the young generation) reported it as a new disease, with "extraordinary" symptoms.

The ergotism theory calls for the acceptance of a whole conjunction of improbabilities, any one of which would throw a heavy strain on one's

[4] R. Storey, *Impartial History of the Affairs of Ireland*, 1693, p. 39.

credulity. Rye—not wheat, barley, etc.—is the normal host of ergot because the glumes of unfertilized rye remain wide open, and so there is no defence against invasion by the fungus. It is possible, however, for grain of other kinds to be attacked on occasion, in spite of their resistance; though it is said that the ergot thus produced is less toxic in character. At any rate, all the intense and destructive epidemics of ergotism that recurred repeatedly in the past were associated with infected rye, and were limited to countries where rye was commonly eaten. If the Athenian plague was, in fact, ergotism, there must have been grain infection of the heaviest and most virulent degree—unthinkable in any cereal other than rye, a species which the Greeks and Romans are said not to have used. The Athenian plague was infectious, for the physicians were the first to die; further, forces sent from Athens (while the epidemic was still raging), to help their army besieging Potidaea, carried it with them and infected the troops already there (Thuc. ii, 58, 2). But ergotism is not infectious. The epidemic was a fever of some kind; whereas in the vast majority of subjects of acute ergotism the temperature is normal or subnormal. Neither of the two classical symptoms in severe cases of this intoxication is even mentioned—the terrible pains that often cause the victims to scream aloud; and the contractions of the limbs, so that the subject is rolled up into a ball, or lies as rigid as a statue. In short, Thucydides' story does not suggest acute ergotism in any way.

One significant feature of the outbreak was the early deaths of the physicians. The rarity with which doctors contract infection from their patients has often been remarked: the outstanding exception is typhus, which has always been the one *morbus medicorum*. The reason of this is, that the infected faeces of the louse dry to a light dust which is easily diffused and can cause infection through the skin and the eye, or by inhalation, in a person who is himself free from lice. Over a century ago, William Stokes pointed out that a doctor attending typhus patients ran a greater risk of death than a soldier on active service; and I have collected some facts to show the appalling mortality during the Irish famine of 1846 when, for example, of 473 additional doctors specially appointed for famine duty, on an average one in every thirteen died at his post.[5] This peculiarity alone may suffice to indicate the nature of an outbreak when other details are not forthcoming. Not long since in Greenock I heard the story of an epidemic of "typhoid fever" in that town about

[5] *The Great Famine: Studies in Irish history, 1845-52*, Dublin: Browne & Nolan, 1956, p. 281; United States edition: New York University Press, 1957.

ninety years ago. My elderly informant told me that her grandmother, in taking soup to some of the afflicted families, caught the fever and died; and that seven doctors in the town had died also. I said, "That was not typhoid!"; and my spot diagnosis of typhus was confirmed on reference to the local library.

Ever since I decided, many years ago, that no epidemic fever other than typhus would fit Thucydides' story, I have taken the opportunity of questioning every doctor with extensive experience of typhus whom I have met, as to his own opinion; and my inquisition has included men of the greatest distinction in this field, among others, Felix of the Weil-Felix typhus reaction; I have yet to find one whose opinion did not agree with mine. I stress the proviso of first-hand experience, because the inter-relationship and balance of the characters that together make up the clinical picture of a disease can be learned only from demonstration and experience, and not from a book; just as no one could learn to drive a motor car from a book, unless he had a car to practise with and to study.

At the end of an exhaustive study of the history of ergotism, Barger[6] reached this conclusion: "There is no evidence that ergotised cereals were known to the Greeks and Romans, nor were there outbreaks of ergotism, such as those caused by ergot of rye in the Middle Ages."

Many diseases—including typhus—can be identified in the accounts in the Hippocratic Collection, and others guessed at. I can find nothing in either of these two groups to suggest that the Greek physicians had any experience of the manifestations of intoxication by ergot.

I have often wondered if those who hold that the pestilence of Athens was bubonic plague, or smallpox, can have had any actual experience of either disease. Had the epidemic been the former, many of the sufferers would have shown inflammatory buboes, chiefly in the groin, some of them as large as one's fist; red, livid, or black in colour, often with local sloughing; or, in less severe infections, going on to suppuration and prolonged discharge. It is incredible that these obvious swellings, often causing agonizing pain, could have escaped notice throughout a great epidemic; we should expect something like the description of the Justinian plague given by Procopius. Further, the duration of fatal attacks in epidemic plague is much shorter than Thucydides indicates, most of the deaths occurring within the first five days, and more than half of them within the first three. On the other hand, had the epidemic been smallpox of a like degree of intensity, there must have been haemorrhagic cases—the

[6] G. Barger, *Ergot and Ergotism*, London: Gurney & Jackson, 1931, p. 42.

body wholly purple in hue, with bleedings from the nose, mouth, bladder and intestine, and into the eyes; and along with these a large number of cases of confluent smallpox where the whole face becomes one superficial abscess and the features unrecognizable. These ghastly cases present a spectacle too horrifying to be ignored, and had such in fact occurred, they would have been a main item in Thucydides' story. Finally, in neither of these two epidemic diseases—plague and smallpox—is gangrene of the extremities, recorded by Thucydides, encountered.

MEDICO-HISTORICAL NEWS AND ACTIVITIES

ANNOUNCEMENTS

AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE

The Thirty-First Annual Meeting of the American Association for the History of Medicine was held in New York City, May 22 to 24, 1958. The following matters are brought to the attention of members.

Certificate of Incorporation and Bylaws: The Certificate of Incorporation and the new Bylaws adopted at the meeting are published in full in this issue, p. 249 ff.

Elections: Owsei Temkin, President; Chauncey D. Leake, Vice-President. The names of other members of the Council elected to serve terms of varying length will be found at the head of the membership list published in this issue, p. 263.

Awards: The William H. Welch Medal was awarded to Charles F. Mullett for his book, ***The Bubonic Plague and England; an Essay in the History of Preventive Medicine***. The William Osler Medal was awarded to D. G. Lawrence of Montreal (M. D., McGill, June 1957) for his essay, "'Resurrection' and Legislation, or Body-Snatching in Relation to the Anatomy Act in the Province of Quebec." Honorable Mention was awarded to George J. Hill, II (M. D., Harvard, June 1957) for "Cancer Research in the Mid-Nineteenth Century (1840-1870)," and to G. J. Tucker (Class of 1960, Western Reserve University Medical School) for "Hysteria: Polemic and Mirror to the Eighteenth Century Intellectual Environment."

Annual Meeting, 1959: The Thirty-Second Annual Meeting will be held in Cleveland, Ohio, at a time to be announced later.

JOHNS HOPKINS INSTITUTE OF THE HISTORY OF MEDICINE

Dr. Owsei Temkin has been appointed William H. Welch Professor of the History of Medicine and Director of the Institute of the History of Medicine to succeed Dr. Richard H. Shryock who will retire on June 30th, 1958.

NATIONAL NEWS

College of Physicians of Philadelphia, Section on Medical History

Eleanor M. Tilton, Ph. D., Professor of English in Barnard College, is the speaker chosen to deliver The Kate Hurd Mead Class of 1888 Lecture in Medical History of the Woman's Medical College of Pennsylvania at the Hall of the College. April 15, 1958. The title of Dr. Tilton's address is "Science and Sentiment."

Johns Hopkins University

A Hideyo Noguchi Lecture was delivered on April 11, 1958, at the Institute of the History of Medicine, by Dr. Walter Artelt. Dr. Artelt who is at present serving as Visiting Professor of the History of Medicine at the University of Wisconsin, spoke on "Johann Christian Senckenberg (1707-1772) and the First German Scientific Foundation."

Kekule-Couper Centennial

To commemorate the pioneering papers of Friedrich August Kekule and Archibald Scott Couper in 1858 on the tetravalence and self-linking of carbon, a centennial celebration will be held at the fall meeting of the American Chemical Society, September 7-12, in Chicago. Celebrations are also planned in London and Ghent.

Personal

John C. Burnham, acting instructor in history at Stanford University has been awarded a three-year training grant for the study of mental health history by the Foundations' Fund for Research in Psychiatry.

Urdang Medal

The American Institute of the History of Pharmacy will award the fourth George Urdang Medal to Dr. Dirk Arnold Wittop-Koning who operates a pharmacy in Amsterdam, teaches history of pharmacy at the Municipal University of Amsterdam, and is curator of the Dutch Medical-Pharmaceutical Historical Museum.

PROGRAMS OF MEETINGS

Benjamin Waterhouse Medical History Society

April 29, 1958: "The Establishment of the Medical Profession in America, 1762-1768," Whitfield J. Bell, Jr.

The Ohio Academy of History of Medicine

April 26, 1958, Taft Museum, Cincinnati, Ohio, Leon Goldman, M. D., presiding: "Medical Education One Hundred Years Ago—The Introductory Lecture," Genevieve Miller; "The Origin of Medical Education in the Ohio Valley," David A. Tucker, Jr.; "The Transylvania Medical School," Carey Barrett; "Edward D. Mansfield," Robert H. Preston; "Otto Juettner," Reginald Charles McGrane; "The Famous O. M. U. Tigers 1895-1906," Linden F. Edwards; "Some Comments on the History of Russian Physiology," Chauncey D. Leake; "A Psychiatrist Journeys in Egypt With Herodotus," Chester M. Pierce; "Some Irreverant and Irrelevant Remarks on Grecian Vases," Leon Goldman; "Concepts and Approaches in North American Indian Medicine," Robert Brandt.

NEWS FROM ABROAD

India

The Department of History of Medicine, started in the Andhra Medical College in September, 1956, was transferred in April, 1957, to the following address: Gandhi Medical College Buildings, Bashir Bagh, Hyderabad, Andhra Pradesh, India.

CERTIFICATE OF INCORPORATION

OF

AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE, INC.

PURSUANT TO THE MEMBERSHIP CORPORATIONS LAW.

We, the undersigned, a Committee of the American Association of the History of Medicine, an unincorporated association not organized for pecuniary profit, having been duly authorized to incorporate the said association for the purpose of incorporating the same pursuant to the Membership Corporations Law, hereby certify:

FIRST: The name of the proposed corporation is AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE, INC.

SECOND: The purposes for which said corporation is to be formed are as follows:

To take over, carry on and continue the affairs, property, obligations and business of the unincorporated association known as American Association of the History of Medicine, and to have the following purposes, to wit:

(a) To promote, stimulate and encourage research, study, interest and writing in the history of medicine, including the history of public health, dentistry, pharmacy, nursing and allied arts, sciences and professions; to lend its support to and to cooperate with local, national or international organizations having similar purposes; to organize and arrange meetings, forums and discussion group lectures, present awards and to sponsor, encourage and assist in the preparation, dissemination and distribution without profit of historical studies, reports, books, periodicals and other informational material pertaining to or connected with the aforesaid objectives and purposes of the corporation;

(b) The corporation shall conduct its activities solely for educational, scientific and literary purposes and not for pecuniary profit.

(c) All aid and assistance by the corporation shall be voluntary.

THIRD: (a) The corporation shall not organize, operate or conduct an institution of the kind referred to in subdivision 2 of Section 11 of the Membership Corporations Law;

(b) No part of the net earnings of the corporation shall inure to the benefit of any member, director, officer of the corporation, or any private individual (except that reasonable compensation may be paid for services rendered to or for the corporation affecting one or more of its purposes) and no member, director, officer of the corporation or any private individual shall be entitled to share in the distribution of any of the corporate assets on dissolution of the

corporation. No part of the activities of the corporation shall be carrying on propaganda, or otherwise attempting to influence legislation, or participating in, or intervening in (including the publication or distribution of statements) any political campaign on behalf of any candidate for public office. No part of the income or funds of the corporation shall be contributed to any organization whose net earnings, or any part thereof, inure to the benefit of any private shareholder or individual or any substantial part of the activities of which is the carrying on of propaganda or otherwise attempting to influence legislation or participation in or intervening in any political campaign on behalf of any candidate for public office.

(c) As a means of accomplishing the foregoing purposes, the corporation shall have the following powers:

(i) To accept, acquire, receive, take, and hold by bequest, devise, grant, gift, purchase, exchange, lease, transfer, judicial order or decree, or subscriptions or membership dues, or otherwise, for any of its objects and purposes, any money or any property, both real and personal, of whatever kind, nature, or description and wherever situated.

(ii) To sell, exchange, convey, mortgage, lease, transfer, or otherwise dispose of, any such property, both real and personal, as the objects and purposes of the corporation may require, subject to such limitations as may be prescribed by law.

(iii) To borrow money and, from time to time, to make, accept, endorse, execute and issue bonds, debentures, promissory notes, bills of exchange, and other obligations of the corporation for moneys borrowed or in payment for property acquired or for any of the other purposes of the corporation, and to secure the payment of any such obligations by mortgage, pledge, deed, indenture, agreement, or other instrument of trust, or by other lien upon, assignment of, or agreement in regard to all or any part of the property rights, or privileges of the corporation wherever situated, whether now owned or hereafter to be acquired.

(iv) To invest and reinvest its funds in such stock, common or preferred, bonds, debentures, mortgages, or in such other securities and property as its Board of Directors shall deem advisable, subject to the limitations and conditions contained in any bequest, devise, grant or gift.

(v) In general, to exercise such other powers which now are or hereafter may be conferred by law upon a corporation organized for the purposes hereinabove set forth, or necessary or incidental to the powers so conferred, or conducive to the attainment of the purposes of the corporation, subject to such limitations as are or may be prescribed by law.

FOURTH: The territory in which the operations of the corporation are to be principally conducted is the United States of America, and its territories and possessions, and Canada.

FIFTH: The principal office of the corporation is to be located in the County of New York, City and State of New York.

SIXTH: The number of the directors of the corporation shall be not less than seven (7) nor more than fifty (50). The directors collectively may also be known and referred to as members of the Council.

SEVENTH: The names and places of residence of the directors until the first annual meeting of the corporation and with respect to any director residing in a city the street and number or other particular description of his residence are:

Name	*Address*
John B. Blake	3038 Newark Street, N. W. Washington 8, D. C.
George W. Corner	200 East 66th Street New York 21, New York
Jean A. Curran	44 Martin Street Cambridge 38, Massachusetts
John F. Fulton	100 Deepwood Drive Hamden 17, Connecticut
Iago Galdston	69 Orange Street Brooklyn 1, New York
Ralph H. Major	6105 High Drive Kansas City 15, Missouri
George Rosen	285 Riverside Drive New York 25, New York
Dorothy M. Schullian	2790 East 130th Street Cleveland 20, Ohio
Benjamin Spector	1284 Beacon Street Brookline 46, Massachusetts
Lloyd G. Stevenson	573 Lansdowne Avenue Westmount, P. Q., Canada
Owsei Temkin	419 Alabama Road Towson, Baltimore County Maryland
David A. Tucker, Jr.	3518 Bayard Drive Cincinnati 8, Ohio
Henry R. Viets	East Boothbay Maine
Leo M. Zimmerman	5205 Dorchester Avenue Chicago 15, Illinois

EIGHTH: All of the subscribers to this certificate are of full age; at least two-thirds of them are citizens of the United States; at least one of them is a resident of the State of New York; and of the persons named as directors at least one is a

citizen of the United States and a resident of the State of New York. The said subscribers are:

JOHN B. BLAKE
JEAN A. CURRAN
HENRY R. VIETS
GEORGE W. CORNER
IAGO GALDSTON
GEORGE ROSEN

IN WITNESS WHEREOF, we have made, subscribed and acknowledged this certificate this 25th day of October, 1957.

JOHN B. BLAKE
JEAN A. CURRAN
HENRY R. VIETS
GEORGE W. CORNER
IAGO GALDSTON
GEORGE ROSEN

DISTRICT OF COLUMBIA } ss.:

On the 25th day of October, 1957, before me personally came JOHN B. BLAKE, to me known and known to me to be one of the individuals described in and who executed the foregoing Certificate of Incorporation and duly acknowledged to me that he executed the same.

(Notarial Seal)

THOMAS F. CLARK
Notary Public

(Certificate of Secretary of Board of Commissioners of District of Columbia attached)

STATE OF MASSACHUSETTS }
COUNTY OF SUFFOLK } ss.:

On the 29th day of October, 1957, before me personally came JEAN A. CURRAN, to me known and known to me to be one of the individuals described in and who executed the foregoing Certificate of Incorporation and duly acknowledged to me that he executed the same.

(Notarial Seal)

LILLIAN PELLEGRINO
Notary Public

(Certificate of Secretary of Commonwealth of Massachusetts attached)

STATE OF MASS.
COUNTY OF SUFFOLK } ss.:

On the 1st day of November, 1957, before me personally came HENRY R. VIETS, M. D., to me known and known to me to be one of the individuals described in and who executed the foregoing Certificate of Incorporation and duly acknowledged to me that he executed the same.

(Notarial Seal)

S. GERTRUDE DEVINE
Notary Public

(Certificate of Secretary of
Commonwealth of Massachusetts
attached)

STATE OF NEW YORK
COUNTY OF NEW YORK } ss.:

On the 25th day of November, 1957, before me personally came GEORGE W. CORNER, to me known and known to me to be one of the individuals described in and who executed the foregoing Certificate of Incorporation and duly acknowledged to me that he executed the same.

ANTHONY J. CAMPO
Notary Public

ANTHONY J. CAMPO
Notary Public, State of New York
No. 30-5590200 Qualified in Nassau Co.
Cert. Filed in New York County
Commission Expires March 30, 1959

(Notarial Seal)

STATE OF N. Y.
COUNTY OF N. Y. } ss.:

On the 26th day of November, 1957, before me personally came IAGO GALDSTON, to me known and known to me to be one of the individuals described in and who executed the foregoing Certificate of Incorporation and duly acknowledged to me that he executed the same.

JOSEPH VESELY
Notary Public

JOSEPH VESELY
Notary Public, State of New York
No. 41-4097650 Queens County
Cert. Filed in New York County
Commission Expires March 30, 1959

(Notarial Seal)

STATE OF NEW YORK }
COUNTY OF NEW YORK } ss.:

On the 3rd day of January, 1958, before me personally came GEORGE ROSEN, to me known and known to me to be one of the individuals described in and who executed the foregoing Certificate of Incorporation and duly acknowledged to me that he executed the same.

MARY J. SULLIVAN
Notary Public

(Notarial Seal)

MARY J. SULLIVAN
Notary Public, State of New York
No. 31-3898275
Qualified in New York County
Commission Expires March 30, 1959

STATE OF NEW YORK }
COUNTY OF NEW YORK } ss.:

JOHN B. BLAKE, JEAN A. CURRAN, HENRY R. VIETS, IAGO GALDSTON, GEORGE ROSEN and GEORGE W. CORNER, each being duly sworn, depose and say and each for himself deposes and says:

1. That the purposes set forth in the annexed Certificate of Incorporation of AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE, INC. are the same as those of the unincorporated association.

2. That the subscribers to the annexed Certificate of Incorporation constitute a majority of the members of a Committee authorized to incorporate the said Association by a vote as required by the organic law of said Association, to wit, the Constitution of said Association, for the amendment of such organic law and that no previous or other application for the approval of the foregoing Certificate has been made.

Sworn to before me this
10th day of January
1958.

HELEN SCHRON
Notary Public

HELEN SCHRON
Notary Public, State of New York
No. 24-8851950
Qualified in Kings County
Certificate filed in New York County
Term Expires March 30, 1958

JOHN B. BLAKE
JEAN A. CURRAN
HENRY R. VIETS
IAGO GALDSTON
GEORGE ROSEN
GEORGE W. CORNER

STATE OF NEW YORK }
COUNTY OF NEW YORK } ss.:

ABRAHAM WILSON, being duly sworn, deposes and says:

That he is attorney for the subscribers to the annexed Certificate of Incorporation, that he knows the said subscribers and, to the best of his information and belief, all of the said subscribers are citizens of the United States, at least one of them is a resident of the State of New York, and that he knows the persons named as subscribers in said certificate and that all of them are citizens of the United States and at least one is a resident of the State of New York, and that, to the best of his information and belief, no previous or other applications were made to any Justice of the Supreme Court for the approval of this certificate.

Sworn to before me this
16th day of January,
1958.

ABRAHAM WILSON

HELEN SCHRON
Notary Public

HELEN SCHRON
Notary Public, State of New York
No. 24-8851950
Qualified in Kings County
Certificate filed in New York County
Term Expires March 30, 1958

I, the Hon. SAMUEL H. HOFSTADTER a Justice of the Supreme Court of the State of New York, hereby approve the foregoing Certificate of Incorporation of American Association for the History of Medicine, Inc.

Dated, New York, N. Y.,
January 21st, 1958.

SAMUEL H. HOFSTADTER
Justice of the Supreme Court of
the State of New York, First
Judicial District

AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE, INC.

BYLAWS

(Adopted May 24, 1958)

Article I: Name and Purpose

Section 1: The name of this corporation shall be American Association for the History of Medicine, Inc.

Section 2: The purposes of the Association shall be to promote, stimulate, and encourage research, study, interest, and writing in the history of medicine, including the history of public health, dentistry, pharmacy, nursing, and allied arts, sciences, and professions; to lend its support to and to cooperate with local, national, or international organizations having similar purposes; to organize and arrange meetings, forums and discussion group lectures, present awards, and issue publications; and for such other purposes as are set forth in its Certificate of Incorporation.

Section 3: The Association shall conduct its activities solely for educational, scientific, and literary purposes, and not for pecuniary profit.

Article II: Membership

Section 1: There shall be four classes of members: Active Members, Nonresident Members, Honorary Members, and Constituent Societies. Active Members may be designated as Contributing or Sustaining Members by the payment of additional dues, as established in accordance with Article VI; in all other respects the rights and duties of Contributing and Sustaining Members shall be identical with those of other Active Members.

Section 2: Any resident of the United States of America, its territories and possessions, or Canada who is interested in the history of medicine shall be eligible for Active Membership upon nomination in writing by an Active Member and election by the Membership Committee.

Section 3: Any person interested in the history of medicine who is not a resident of the United States of America, its territories and possessions, or Canada shall be eligible for Nonresident Membership upon nomination in writing by an Active Member and election by the Membership Committee. Nonresident Members shall not be entitled to vote at the annual or other meetings.

Section 4: Honorary Membership may be conferred upon any person who has made outstanding contributions to the history of medicine or science upon the nomination of the Council and election by the Active Members at the annual meeting, provided that names of proposed candidates for Honorary Membership shall be submitted in writing to the members of the Council at least thirty days

before the annual meeting. Honorary Members shall have all the privileges of Active Members if they reside within the United States of America, its territories and possessions, or Canada, and of Nonresident Members if they do not.

Section 5: Any organization in the United States of America, its territories and possessions, or Canada, such as a society, club, institute, or library, having purposes similar to those of the Association, shall be eligible for membership as a Constituent Society upon nomination in writing by an Active Member and election by the Council. Each Constituent Society may choose one delegate to attend the annual meeting of the members, who, on that occasion, shall have the same voting rights as Active Members. Each Constituent Society shall submit a brief written report on its activities to the Secretary at the time of the annual meeting of the Association.

Section 6: Membership shall not become effective until the Treasurer has received the first year's dues.

Section 7: If any person or organization being a member or Constituent Society of the Association is believed to be guilty of an act prejudicial to the Association or its purposes, such person or organization shall be notified to appear personally or in the case of a Constituent Society through an officer or other representative for a hearing before the Council at a designated time and place not less than thirty days after such notification. The membership of such person or organization may be terminated by a two-thirds vote of the members of the Council present at the hearing and voting.

Article III: Officers

Section 1: The officers of the Association shall be a President, Vice-President, Secretary, and Treasurer, all of whom shall be Active Members of the Association. All officers shall be elected by the Active Members at an annual meeting for two-year terms by plurality of members voting, in person or by proxy, the President and Vice-President in even years, and the Secretary and Treasurer in odd years. Their terms of office shall begin at the close of the meeting at which they are elected and terminate at the close of the meeting at which their successors are elected. One person may hold the offices of both Secretary and Treasurer.

Section 2: The officers shall have the powers and duties customarily incident to their respective offices in similar organizations and also such as shall specifically be delegated to them by the Council.

Section 3: Honorary Officers may be nominated and elected from among Active Members by the same procedure that is provided for the nomination and election of Honorary Members.

Article IV: Council

Section 1: Except as otherwise required by law or provided in these Bylaws, management of the affairs of the Association shall be vested in a Board of Directors, which shall be known as the Council.

Section 2: The Council shall consist of the officers of the Association, the immediate past President, and twelve Active Members elected for three-year terms

at an annual meeting by plurality of Active Members voting. The President shall act as Chairman of the Council. Six shall constitute a quorum of the Council.

Section 3: The members of the Council other than the officers and immediate past President shall be divided into three classes of four members each. At each annual meeting of the Association there shall be an election of four members of the Council other than the officers and immediate past President to hold office for three years or until the third annual meeting after their election. At the first annual meeting of the Association at which these Bylaws are adopted there shall be elected four members of the Council other than the officers and the immediate past President to hold office for one year, four to hold office for two years and four to hold office for three years.

Section 4: In the election of members of the Council, due regard shall be had to representative geographical distribution, provided that so long as the Association is incorporated in the State of New York, at least one member of the Council shall be a legal resident of that State.

Section 5: The Council shall hold an annual meeting not more than one week preceding the annual meeting of the Association, at a time and place designated by the President. Special meetings may be called at any time by the President or by any five members of the Council upon at least two weeks' written notice to each member of the Council.

Section 6: The Council shall provide for filling the unexpired term of any vacancy that may occur in any office or in the Council.

Section 7: Except as otherwise provided by law and these Bylaws, decisions of the Council shall be by majority vote of those members of the Council present and voting.

Article V: Meetings

Section 1: The annual meeting of the members of the Association at which officers and members of the Council shall be elected shall be held at a time and place designated by the Council. The President shall arrange the order of business. Twenty members shall constitute a quorum.

Section 2: The Secretary shall mail notice of the annual meeting of the Association to each member entitled to vote not less than thirty nor more than forty days before the meeting. Such notification shall state the time, place, and general purposes of the meeting, together with the nominations made in accordance with Article XI, Section 2, and any amendments proposed in accordance with Article XII, Section 1, of these Bylaws.

Section 3: The Council of the Association shall present at the annual meeting a report dated as of the close of the last complete fiscal year, verified by the President and Treasurer, or by a majority of the members of the Council, showing the whole amount of real and personal property owned by it, where located, and where and how invested, the amount and nature of the property acquired during the year immediately preceding the date of the report and the manner of acquisition; the amount applied, appropriated or expended during the year immediately preceding such date, and the purposes, objects or persons to or for which such applications,

appropriations or expenditures have been made. This report shall also show the names and addresses of the persons and organizations who have been admitted to membership during such year, and the number of members in each class of membership at the beginning and end of such period. This report shall be filed with the records of the Association and an abstract thereof entered in the minutes of the proceedings of the annual meeting at which the report is presented. The President shall appoint two Active Members of the Association, neither of whom shall be members of the Council, to act as auditors, who shall examine the annual report referred to in this section prior to the annual meeting and express their opinion thereon at the annual meeting.

Article VI: Dues and Finances

Section 1: The amount of the annual dues for all classes of membership shall be determined by vote of the Active Members, except that Honorary Members shall pay no dues.

Section 2: All dues shall be payable annually by January first. If the dues of any member remain unpaid on March first, the Treasurer shall mail a notice of delinquency. If the dues of any member are not paid within sixty days after the mailing of such notice, his membership shall automatically terminate, unless the Council shall, in individual cases, waive this provision.

Section 3: Members who have been dropped for nonpayment of dues may be reinstated at any time before the close of the year in which they were dropped upon payment of the dues for that year.

Section 4: The fiscal year of the Association shall begin on November 1 and end on the following October 31.

Article VII: Publications

Section 1: The Association may issue its transactions and other publications either independently or with an established journal within the terms of an agreement made between the Association and the proprietor of this journal.

Section 2: All members shall receive regular subscriptions to the journal or other publication that prints the official transactions of the Association.

Article VIII: Awards

Section 1: The Association may invite any person distinguished for contributions to medical history or other fields of science and learning to present the Fielding H. Garrison Lecture at the annual meeting. The lecture should be the result of original research and must not have been previously published. The lecturer shall be selected by the Garrison Lecture Committee.

Section 2: The Association may award the William H. Welch Medal for particular contributions of outstanding scholarly merit in the field of medical history published during the five years preceding the award. The medal shall not be

awarded more often than once each year. Final decision on the award of the medal shall be made by the Council upon the recommendation of the Welch Medal Committee.

Section 3: The Association may award the William Osler Medal to students of medicine in the medical schools of the United States and Canada for unpublished essays that either are the result of original research or show an unusual appreciation and understanding of historical problems. The medal shall not be awarded more often than once each year. Final decision on the award of the medal shall be made by the Council upon the recommendation of the Osler Medal Committee.

Article IX: Relations with the International Society

Section 1: The Association will maintain close liaison and cooperate with the International Society of the History of Medicine as the United States of America and Canadian sections thereof.

Section 2: Members of the Association who wish to join the International Society should apply to the Council of the Association, which will act upon recommending them for election to membership by the Permanent International Committee of the International Society.

Section 3: In every odd year at the time of the annual meeting of the Council the President shall appoint, subject to confirmation by the Council, two Active Members who must also be members of the International Society to represent the Association in the International Society for the ensuing two years, or until their successors are qualified. One, a citizen of Canada, shall serve as national delegate for Canada; the other, a citizen of the United States of America, as national delegate for the United States. At the same time the President shall also appoint, subject to confirmation by the Council, two alternate delegates having the same qualifications as the delegates. The names of the delegates and alternate delegates shall be forwarded to the Permanent International Committee of the International Society.

Section 4: In conformity with the regulations of the International Society, the national delegates shall be members of its Permanent International Committee. They shall keep the President and the General Secretary of the International Society informed about medical-historical activities in the United States and Canada. They should attend the meetings of the Permanent International Committee and represent the Association at International Congresses, and function as intermediaries between the International Society and its members in the United States and Canada.

Section 5: In case both the delegate and the alternate delegate from either the United States or Canada are unable to attend an International Congress, the President may appoint delegates for the occasion.

Article X: Committees

Section 1: The President shall appoint annually a Membership Committee consisting of three members of the Council.

Section 2: The President shall appoint annually a Garrison Lecture Committee to select the Fielding H. Garrison Lecturer.

Section 3: The President shall appoint annually an Osler Medal Committee to make recommendations to the Council on the award of the William Osler Medal.

Section 4: The President shall appoint annually a Welch Medal Committee to make recommendations to the Council on the award of the William H. Welch Medal.

Section 5: The President shall appoint annually one or more committees to arrange the program and other activities for the annual meeting.

Section 6: The President shall appoint annually a Committee on Bibliography to prepare for publication an annual bibliography of the history of medicine in the United States and Canada.

Section 7: In every odd year, at the time of the annual meeting of the Council, the President shall appoint, subject to confirmation by the Council, an Editorial Committee consisting of three Active Members who shall continue in office for the ensuing two years. The Editorial Committee shall perform such work and undertake such negotiations with respect to editorial matters as may be required subject to any agreements or contracts made by the Association regarding its publications.

Article XI: Nominations and Elections

Section 1: In every odd year at the time of the annual meeting of the Council the President shall appoint subject to confirmation by the Council a Nominating Committee consisting of three Active Members, none of whom shall be members of the Council, who shall continue in office for two years or until their successors are appointed.

Section 2: The Nominating Committee shall present a list of nominations to the Secretary for the elections to be held at any annual meeting not less than two months before such meeting, and the Secretary shall mail the list to all members of the Association not less than thirty nor more than forty days before the annual meeting. Additional nominations may be made in writing to the Secretary by any five members at any time previous to the voting.

Section 3: The voting in all elections for officers and members of the Council shall be held at the annual meeting called for that purpose and shall be by written ballot, unless in any particular case only one person has been nominated for a particular position.

Article XII: Amendments

Section 1: Any five Active Members may propose changes in the Bylaws by presenting their proposals to the Secretary in writing not less than two months prior to any annual meeting. The Secretary shall send them to the Active Members not less than thirty nor more than forty days before the meeting. The proposed changes shall then be considered at the meeting and shall become effective by a two-thirds vote of the Active Members voting.

Section 2: Upon the recommendation of the Council the Bylaws may be changed without prior notice by a two-thirds vote of the Active Members voting at any annual meeting.

Article XIII: Parliamentary Authority

Section 1: The rules of procedure contained in *Robert's Rules of Order, Revised* shall govern meetings of the members of the Association so far as they are applicable and when not inconsistent with these Bylaws.

Article XIV: Seal

Section 1: The seal of the Association shall be that adopted by the Council and shall be identical to that adopted for its seal by the American Association of the History of Medicine in 1935, except that the words around the outside shall be American Association for the History of Medicine, Inc. 1958 and there shall be added to the central design, below the pedestal, the words Founded 1925.

AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE

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JUNE 1, 1958

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Benjamin Spector, Immediate Past President

Term expires 1959

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Ralph H. Major
Lloyd G. Stevenson
J. I. Waring

Term expires 1960

Iago Galdston
Samuel X. Radbill
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Term expires 1961

George W. Corner
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Dorothy M. Schullian
Elizabeth H. Thomson

CONSTITUENT SOCIETIES

ALABAMA SOCIETY OF MEDICAL HISTORY
Mrs. Mildred Whatley, Secretary, Univ. of Alabama Medical Center, Birmingham 3, Ala.

AMERICAN ACADEMY OF THE HISTORY OF DENTISTRY
Dr. Milton B. Asbell, Secretary-Treasurer, 25 Haddon Ave., Camden 3, N. J.

AMERICAN INSTITUTE OF THE HISTORY OF PHARMACY
Univ. of Wisconsin, School of Pharmacy, Madison 6, Wis.

BEAUMONT MEDICAL CLUB
Dr. Levin L. Waters, Secretary, Yale Univ. School of Medicine, 333 Cedar St., New Haven 11, Conn.

Benjamin Waterhouse Medical History Society
Dr. John J. Byrne, Secretary, 818 Harrison Ave., Boston 18, Mass.

Boston Medical History Club
8 The Fenway, Boston 15, Mass.

Boston Medical Library
8 The Fenway, Boston 15, Mass.

Calgary Associate Clinic Medical Historical Society
214 Sixth Ave., West, Calgary, Alta., Canada

College of Physicians of Philadelphia, Section on Medical History
Dr. Herbert J. Dietrich, Jr., Clerk, 2035 Delancey Pl., Philadelphia 3, Pa.

Frederick R. Taylor History of Medicine Society
Bowman Gray School of Medicine, Winston-Salem, N. C.

The George W. Corner Society of the History of Medicine
Univ. of Rochester Medical Center, 260 Crittenden Blvd., Rochester 20, N. Y.

Handerson Medical History Society
Dr. Genevieve Miller, Secretary-Treasurer, Cleveland Medical Library Association, 11000 Euclid Ave., Cleveland 6, Ohio

The History of Medicine Society of Tulane University of Louisiana
Tulane Univ. of Louisiana Medical School, New Orleans 18, La.

Innominate Society
Univ. of Louisville Medical Library, 101 W. Chestnut St., Louisville 2, Ky.

The Johns Hopkins Medical History Club
1900 E. Monument St., Baltimore 5, Md.

The Johns Hopkins University, Institute of the History of Medicine
1900 E. Monument St., Baltimore 5, Md.

Josiah C. Trent Society for the History of Medicine
Box 3228, Duke Univ., Durham, N. C.

New York Academy of Medicine, Section on Historical and Cultural Medicine
2 E. 103rd St., New York 29, N. Y.

The Ohio Academy of Medical History
Dr. Linden F. Edwards, Secretary-Treasurer, Dept. of Anatomy, Ohio State Univ., Columbia 10, Ohio.

Providence Medical History Society
Dr. Elihu S. Wing, Jr., Secretary, 155 Thayer St., Providence 6, R. I.

Richmond Academy of Medicine, Section on the History of Medicine
1200 E. Clay St., Richmond 19, Va.

The Robert Wilson Medical History Club of Charleston
Dr. J. I. Waring, 82 Rutledge Ave., Charleston 37, S. C.

Society for the History of Medical Science
Miss Louise Darling, Secretary, Biomedical Library, Univ. of California Medical Center, Los Angeles 24, Calif.

Society of Medical History of Chicago
Leo M. Zimmermann, M. D., Secretary-Treasurer, 55 E. Washington St., Chicago 2, Ill.

Tufts University Medical and Dental Library
136 Harrison Ave., Boston 11, Mass.

The William Osler Society for the History of Medicine
Miss Mary E. Feeney, Librarian, Hospital of the Univ. of Pennsylvania, 3400 Spruce St., Philadelphia 4, Pa.

The William Welch Society for the History of Medicine
Miss Helen Bayne, New York Univ.—Bellevue Medical Center, 550 First Ave., New York 16, N. Y.

HONORARY MEMBERS

Izquierdo, Prof. J. J.
Dept. of Physiology
Escuela Nacional de Medicina
Mexico, D. F., Mexico

Krumbhaar, E. B., M. D.
Univ. of Pennsylvania School of Medicine
Philadelphia 4, Pa.

Martínez Durán, Carlos, M. D.
Apt do Postal 422
Guatemala City, Guatemala
Central America

Pagel, Walter, M. D.
58, Millway
London N. W. 7
England

Paz Soldán, Carlos Enrique, M. D.
Instituto de Medicina Social
Universidad de San Marcos
Apartado 987
Lima, Peru

Schiaffino, Dr. Rafael
Profesor de la Facultad de Medicina
Director Nacional de Higiene
Sarandi 283
Montevideo, Uruguay

Singer, Charles, D. Litt., M. D., D. Sc., F. R. C. P.
Kilmarth
Par, Cornwall
England

ACTIVE MEMBERS

Aaron, A. H., M. D.
64 Tudor Pl.
Buffalo 9, N. Y.

Abbott, Kenneth H., M. D.
350 E. Broad St.
Columbus 15, Ohio

Adams, Laurence J., M. D.
68-18 Drexelbrook Dr.
Drexel Hill, Pa.

Adelmann, Howard B., Ph. D.
410 Columbia St.
Ithaca, N. Y.

Agnew, L. R. C., M. D.
Dept. of the History of Medicine
Univ. of Kansas Medical Center
Kansas City 12, Kan.

Alexander, Robert L., M. D.
1127 11th St.
Sacramento 14, Calif.

Allen, Max S., M. D.
Dept. of Internal Medicine
Univ. of Kansas Medical Center
Kansas City 12, Kan.

Alpers, J. J., M. D.
336 E. State St.
Columbus 15, Ohio

Anderson, Mrs. Fanny J.
Medical Library, Wayne State Univ.
645 Mullett St.
Detroit 26, Mich.

Anderson, Odin W., Ph. D.
37 Vanderburgh Ave.
Larchmont, N. Y.

Andrews, Kenneth R., M. D.
331 W. 2nd St.
Lexington 7, Ky.

Anlyan, William G., M. D.
Dept. of Surgery
Duke Univ. School of Medicine
Durham, N. C.

Anson, Barry J., Ph. D.
Dept. of Anatomy
Northwestern Univ. Medical School
Chicago 11, Ill.

Appel, Bernard, M. D.
281 Ocean St.
Lynn, Mass.

Appel, Mrs. Doris
281 Ocean St.
Lynn, Mass.

Arms, Arnold V., M. D.
4635 Wyandotte St.
Kansas City 2, Mo.

Armstrong, John Borden
c/o Miss Helen P. Burns
682 Main St.
Hingham, Mass.

Asbell, Milton B., D. D. S.
25 Haddon Ave.
Camden 3, N. J.

Aschner, Bernard, M. D.
784 Park Ave.
New York 21, N. Y.

Bailey, Clark, M. D.
Harlan, Ky.

Ballon, Harry C., M. D. C. M.
3980 Cotes des Neiges, Apt. C 58
Montreal, P. Q., Canada

Barger, James D., M. D.
6124 N. 2nd St.
Phoenix, Ariz.

Barton, A., D. V. M.
108-29 Ascan Ave.
Forest Hills 75, N. Y.

Baumgartner, Leona, M. D.
Commissioner, Dept. of Health
125 Worth St.
New York 13, N. Y.

Bayne, Miss Helen
Curator of Library on Man's Place in Nature
New York Univ.—Bellevue Medical Center
550 First Ave.
New York 16, N. Y.

Bean, William B., M. D.
Dept. of Internal Medicine
University Hospital
Iowa City, Iowa

Bearn, Alexander Gordon, M. D.
The Rockefeller Institute
66th St. and York Ave.
New York 21, N. Y.

Beatty, Arch J., M. D.
245 Locust St.
Akron 2, Ohio

Bechet, Paul E., M. D.
1364 North Ave.
Elizabeth 3, N. J.

Beck, Mrs. Ann M., Ph. D.
221 NE 6th St.
Madison, S. Dak.

Beck, Irving A., M. D.
355 Thayer St.
Providence, R. I.

Beekman, Fenwick, M. D.
136 E. 64th St.
New York 21, N. Y.

Bell, Whitfield J., Jr., Ph. D.
641 Whitney Ave.
New Haven 11, Conn.

Bellis, Carroll J., M. D.
125 E. 8th St.
Long Beach 13, Calif.

Belt, Elmer, M. D.
1893 Wilshire Blvd.
Los Angeles 57, Calif.

Bender, George A., Ph. G.
566 Barrington Rd.
Grosse Pointe Park 30, Mich.

Benison, Saul, Ph. D.
77-29 170th St.
Flushing 66, N. Y.

Benjamin, H. B., M. D.
Marquette Univ. School of Medicine
561 N. 15th St.
Milwaukee 3, Wis.

Benjamin, John A., M. D.
Univ. of Rochester Medical Center
260 Crittenden Blvd.
Rochester 20, N. Y.

Benjamin, Philip M.
Reis Library
Allegheny College
Meadville, Pa.

Bensley, E. H., M. D.
Montreal General Hospital
1650 Cedar Ave.
Montreal 25, P. Q., Canada

Berenberg, Samuel R., M. D.
160 E. 65th St.
New York 21, N. Y.

Berman, Alex, Ph. D.
College of Pharmacy
Univ. of Michigan
Ann Arbor, Mich.

Bettmann, Otto L., Ph. D.
211A E. 57th St.
New York 22, N. Y.

Bick, Edgar M., M. D.
30 E. 60th St.
New York 22, N. Y.

Blake, John B., Ph. D.
3038 Newark St., N. W.
Washington 8, D. C.

Blanton, Wyndham B., M. D.
828 W. Franklin St.
Richmond 20, Va.

Blatt, Hermann, M. D.
580 Doctors' Bldg.
Cincinnati 2, Ohio

Blincoe, Homer, M. D.
New York Medical College
Flower and Fifth Ave. Hospitals
Fifth Ave. at 106th St.
New York 29, N. Y.

Block, Stanley L., M. D.
1110 Sunnyslope Dr.
Cincinnati 29, Ohio

Bolinger, Robert E., M. D.
Univ. of Kansas Medical Center
Kansas City 12, Kan.

Bonanno, Salvatore V., M. D.
97 Lincoln St.
Framingham, Mass.

Boyd, David P., M. D.
Lahey Clinic
605 Commonwealth Ave.
Boston 15, Mass.

Bradley, Chester D., M. D.
2914 West Ave.
Newport News, Va.

Brand, Miss Jeanne L., Ph. D.
2500 Wisconsin Ave., N. W.
Washington 7, D. C.

Brockington, M. L., D. D. S.
Box 146
Florence, S. C.

Brown, J. Edward, M. D.
2611 N. Centre St.
Merchantville 8, N. J.

Browning, George L., M. D.
3820 Fair Oaks Blvd.
Sacramento 25, Calif.

Bruesch, S. Rulin, M. D.
Univ. of Tennessee Medical Units
62 S. Dunlap St.
Memphis 3, Tenn.

Buckley, Robert W., M. D.
2540 Auburn Ave.
Cincinnati 19, Ohio

Bulger, Harold A., M. D.
4405 W. Pine Blvd.
St. Louis 8, Mo.

Bullough, Vern L., Ph. D.
375 Grace St.
Youngstown 4, Ohio

Bunts, Alexander T., M. D.
2020 E. 93rd St.
Cleveland Heights 6, Ohio

Burgison, Raymond M., Ph. D.
Univ. of Maryland School of Medicine
Dept. of Pharmacology
29 S. Greene St.
Baltimore 1, Md.

Burke, Richard M., M. D.
430 N. W. 12
Oklahoma City 3, Okla.

Burrell, Miss Virginia
1721 Garden St.
Santa Barbara, Calif.

Burt, Richard L., M. D., Ph. D.
Bowman Gray School of Medicine
Winston-Salem, N. C.

Butin, J. Walker, M. D.
Wichita Clinic
3244 E. Douglas St.
Wichita 8, Kan.

Byrne, John J., M. D.
818 Harrison Ave.
Boston 18, Mass.

Campbell, Berry, M. D.
Univ. of Minnesota Medical School
Minneapolis, Minn.

Campbell, Leonard H., M. D.
548 First St.
Macon, Ga.

Candel, Samuel, M. D.
189 Ocean Ave.
Brooklyn 25, N. Y.

Capps, Joseph A., M. D.
21 Woodley Rd.
Winnetka, Ill.

Carlson, Eric T., M. D.
60 Sutton Pl. South
New York 22, N. Y.

Carmichael, Emmett B., Ph. D.
Univ. of Alabama Medical Center
Birmingham 3, Ala.

Carr, Miss Elizabeth F.
303 E. Chicago Ave.
Chicago 11, Ill.

Carter, Bayard, M. D.
Duke Univ. Hospital
Durham, N. C.

Cashman, William M., M. D.
514 W. Third Ave.
Warren, Pa.

Cassel, Homer D., M. D.
1909 Salem Ave.
Dayton 6, Ohio

Cavanagh, G. S. T.
Office of the Librarian
Univ. of Kansas Medical Center
Kansas City 12, Kan.

Cavins, Harold M., Ed. D.
1126 6th St.
Charleston, Ill.

Chance, Burton, M. D.
1726 Spruce St.
Philadelphia 3, Pa.

Chandler, A. Bleakley, M. D.
Dept. of Pathology
Medical College of Georgia
Augusta, Ga.

Chapin, W. A. R., M. D.
121 Chestnut St.
Springfield 3, Mass.

Christensen, George C., D. V. M., Ph. D.
Dept. of Anatomy
School of Veterinary Medicine
Iowa State College
Ames, Iowa

Chuinard, E. G., M. D.
7307 N. W. Penridge Rd.
Portland 1, Ore.

Clausman, Gilbert J.
New York Univ.—Bellevue Medical Center
550 First Ave.
New York 16, N. Y.

Coates, John Boyd, Jr., Col., MC
Dept. of the Army
Office of the Surgeon General
Washington 25, D. C.

Cobb, W. Montague, M. D.
Howard Univ. School of Medicine
520 W St., N. W.
Washington 1, D. C.

Cocke, Elton Cromwell, Ph. D.
College Station
Winston-Salem, N. C.

Cohen, Armand E., M. D.
517 Brown Bldg.
321 W. Broadway
Louisville 2, Ky.

Cohen, I. Bernard, Ph. D.
Widener Library 189
Harvard Univ.
Cambridge 38, Mass.

Cohen, Sander, M. D.
408 Doctors' Bldg.
Cincinnati 2, Ohio

Colby, Charles C., III
Boston Medical Library
8 The Fenway
Boston 15, Mass.

Coleman, George H., M. D.
122 S. Michigan Ave.
Chicago 3, Ill.

Coles, Elliot L., M. D.
208 E. Wisconsin Ave.
Milwaukee 2, Wis.

Coller, Frederick A., M. D.
University Hospital
Ann Arbor, Mich.

Collins, Donald C., M. D.
7046 Hollywood Blvd.
Hollywood 28, Calif.

Conn, Jacob H., M. D.
2325 Eutaw Pl.
Baltimore 17, Md.

Conzett, Donald C., M. D.
620 Roshek Bldg.
Dubuque, Iowa

Corcoran, Arthur Curtis, M. D.
Cleveland Clinic Foundation
2020 E. 93rd St.
Cleveland 6, Ohio

Corner, George W., M.D.
The Rockefeller Institute
66th St. and York Ave.
New York 21, N. Y.

Courville, Cyril B., M. D.
1720 New Jersey St.
Los Angeles 33, Calif.

Cowan, George S. M., M. D.
130 E. 94th St.
New York 28, N. Y.

Cowen, David L.
University College
Rutgers Univ.
New Brunswick, N. J.

Craig, Paul C., M. D.
232 N. 5th St.
Reading, Pa.

Cranefield, Paul, Ph. D.
State Univ. of N. Y. College of Medicine
Dept. of Physiology
450 Clarkson Ave.
Brooklyn 3, N. Y.

Crohn, Burrill B., M. D.
1075 Park Ave.
New York 28, N. Y.

Cunningham, Mrs. Eileen R.
Vanderbilt Univ. School of Medicine Library
Nashville 5, Tenn.

Curnen, Edward C., M. D.
Dept. of Pediatrics
North Carolina Memorial Hospital
Chapel Hill, N. C.

Curran, Jean A., M. D.
New England Center Hospital
Harrison Ave. and Bennet St.
Boston 11, Mass.

Dalton, V. B., D. D. S.
116 Garfield Pl.
Cincinnati 2, Ohio

Dameshek, William, M. D.
205 Beacon St.
Boston 16, Mass.

D'Angelo, George J., M. D.
Box 3228
Duke Univ. School of Medicine
Durham, N. C.

Darling, Miss Louise
Biomedical Library
Univ. of California
Los Angeles 24, Calif.

Davis, James E., M. D.
1200 Broad St.
Durham, N. C.

Davis, John H., M. D.
University Hospitals
2065 Adelbert Rd.
Cleveland 6, Ohio

Davison, Wilburt C., M. D.
Duke Univ. School of Medicine
Durham, N. C.

DeJong, Russell N., M. D.
University Hospital
Ann Arbor, Mich.

Delp, Mahlon H., M. D.
Univ. of Kansas Medical Center
Kansas City 12, Kan.

Dennie, Charles C., M. D.
1524 Professional Bldg.
Kansas City 6, Mo.

Denton, George B., Ph. D.
2719 Walnut Ave.
Evanston, Ill.

Desbarats, Miss Cecile
Osler Library, McGill Univ.
3640 University St.
Montreal 2, P. Q., Canada

Dietrich, Herbert James, Jr., M. D.
2035 Delancey Pl.
Philadelphia 3, Pa.

Dimond, E. Grey, M. D.
Univ. of Kansas Medical Center
Kansas City 12, Kan.

Doe, Miss Janet
10 Druid Pl.
Katonah, N. Y.

Dotterer, John E., M. D.
118 Hawkins Ave.
Sanford, N. C.

Doust, Brewster C., M. D.
687 Glendora Ave.
Akron 20, Ohio

Draeger, Miss Ida
Woman's Medical College of Pennsylvania
Henry Ave. and Abbottsford Rd.
Philadelphia 29, Pa.

Drake, T. G. H., M. B.
88 Admiral Rd.
Toronto 5, Ont., Canada

Drayton, Mrs. Evelyn S.
Box 396, R. F. D. #2
Vienna, Va.

Duffy, John, Ph. D.
History Dept.
Louisiana State Univ.
Baton Rouge 3, La.

Eastman, N. J., M. D.
The Johns Hopkins Hospital
601 N. Broadway
Baltimore 5, Md.

Ebert, Miss Myrl
P. O. Box 1043
Chapel Hill, N. C.

Eby, Clifford H., D. V. M.
Dept. of Clinical Medicine and Surgery
College of Veterinary Medicine
Washington State College
Pullman, Wash.

Eckart, DeMerle E., M. D.
312 Wolcott Bldg.
Hutchinson, Kan.

Edelstein, Ludwig, Ph. D.
Dept. of Philosophy
The Johns Hopkins Univ.
Baltimore 18, Md.

Edwards, Linden F., Ph. D.
Dept. of Anatomy
Ohio State Univ.
Columbus 10, Ohio

Edwards, Ralph W., D. D. S.
Univ. of Kansas Medical Center
Kansas City 12, Kan.

Egan, Richard L., M. D.
Creighton Univ.
School of Medicine
Omaha, Neb.

Elias, Herbert, M. D.
21 E. 79th St.
New York 21, N. Y.

Elliott, Floyd M., M. D.
302 N. Main St.
Ada, Ohio

Engbring, Gertrude M., M. D.
4753 Broadway
Chicago 40, Ill.

Etziony, M. B., M. D.
475 Champagneur Ave.
Montreal 8, P. Q., Canada

Faggart, Harold L., D. D. S.
2120 Pine St.
Philadelphia 3, Pa.

Falk, Leslie A., M. D.
5665 Bartlett St.
Pittsburgh 17, Pa.

Faulconer, Robert Jamieson, M. D.
DePaul Hospital
Norfolk 5, Va.

Faust, Fred W., Phil. M.
561 N. 15th St.
Milwaukee 3, Wis.

Fertig, Henry H., Jr., M. D.
2925 Fairmount Blvd.
Cleveland 18, Ohio

Findley, Thomas, M. D.
Medical College of Georgia
Augusta, Ga.

Fischer, Martin H., M. D.
107 Physics Bldg.
Univ. of Cincinnati
Cincinnati 21, Ohio

Fishbein, Morris, M. D.
5454 S. Shore Dr.
Chicago 15, Ill.

Fisher, Otto O., M. D.
2475 Iroquois Ave.
Detroit 14, Mich.

Flaxman, Nathan, M. D.
5060 N. Bernard St.
Chicago 25, Ill.

Fleming, Donald, Ph. D.
Dept. of History
Brown Univ.
Providence 12, R. I.

Flotte, C. Thomas, M. D.
Dept. of Surgery
University Hospital
Ann Arbor, Mich.

Forbes, Thomas R., Ph. D.
Yale Univ. School of Medicine
333 Cedar St.
New Haven 11, Conn.

Forman, Jonathan, M. D.
5570 Riverside Dr.
Worthington R. F. D. 2, Ohio

Fountain, William Edwin, M. D.
215 E. 21st St.
Merced, Calif.

Francis, W. W., M. D.
Osler Library, McGill Univ.
Montreal 2, P. Q., Canada

Frazier, Chester N., M. D.
Massachusetts General Hospital
Boston 14, Mass.

Freedman, Ben, M. D., M. P. H.
1321 Frankfort St.
New Orleans, La.

Fulton, John F., M. D.
Yale Univ. School of Medicine
333 Cedar St.
New Haven 11, Conn.

Gabor, A. S., M. D.
150 W. Broad St.
Bethlehem, Pa.

Galdston, Iago, M. D.
2 E. 103rd St.
New York 29, N. Y.

Gauchat, H. W., M. D.
223 First National Bank Bldg.
Canton 2, Ohio

Gebhard, Bruno, M. D.
Cleveland Health Museum
8911 Euclid Ave.
Cleveland 6, Ohio

George, Alfred K., M. D.
College of Medicine
Cincinnati 19, Ohio

Gernon, J. T. C., M. D.
111 Burnham Pl.
Evanston, Ill.

Gibson, Edward H., III, Ph. D.
Box 186, Brenau College
Gainesville, Ga.

Gillis, Andrew C., M. D.
1033 N. Calvert St.
Baltimore 2, Md.

Glover, D. M., M. D.
10525 Carnegie Ave.
Cleveland 6, Ohio

Gnudi, Mrs. Martha Teach
163 Cedar Ave.
Hackensack, N. J.

Goldburgh, Harold L., M. D.
1932 Spruce St.
Philadelphia 3, Pa.

Goldman, Leon, M. D.
711 Carew Tower
Cincinnati 2, Ohio

Goodfriend, Milton J., M. D.
Medical Arts Bldg.
1882 Grand Concourse
Bronx 57, N. Y.

Gordon, Burgess L., M. D.
4902 Constitution Ave., N. E.
Albuquerque, N. Mex.

Gordon, Maurice Bear, M. D.
6917 Atlantic Ave.
Ventnor, N. J.

Goss, Charles M., M. D.
Louisiana State Univ.
School of Medicine
New Orleans 13, La.

Gottlieb, Mrs. Johanna
Old Hickory Bookshop
31 E. 10th St.
New York 3, N. Y.

Green, John R., M. D.
Park Central Medical Bldg.
550 W. Thomas Rd.
Phoenix, Ariz.

Greene, Clayton W., M. D.
42 Ashland Ave.
Buffalo 22, N. Y.

Greenwald, Isidor, Ph. D.
550 First Ave.
New York 16, N. Y.

Greever, B. L., M. D.
100 N. Main St.
Hutchinson, Kan.

Griffenhagen, George B.
Smithsonian Institution
Washington 25, D. C.

Griffith, John K., M. D.
Valley Falls, Kan.

Gruenberg, Ernest M., M. D.
404 Riverside Dr.
New York 25, N. Y.

Gruman, Gerald J., M. D.
333 Harvard St.
Cambridge 39, Mass.

Guerlac, Henry E., Ph. D.
Dept. of History
Cornell Univ.
Ithaca, N. Y.

Guerra, Francisco, M. D., Ph. D., D. Sc.
333 Cedar St.
New Haven 11, Conn.

Guffey, Don Carlos, M. D.
717 Professional Bldg.
1103 Grand Ave.
Kansas City 6, Mo.

Guild, Stacy R., Ph. D.
The Johns Hopkins Hospital
Baltimore 5, Md.

Guthrey, Mrs. Nora H.
Route 1
Stewartville, Minn.

Hall, Courtney R., Ph. D.
History Dept.
Queens College
Flushing, N. Y.

Hall, D. P., M. D.
Suite 519-520 Heyburn Bldg.
332 W. Broadway
Louisville 2, Ky.

Halley, Charles R. L., M. D.
915 19th St., N. W.
Washington 6, D. C.

Halperin, George, M. D.
535 N. Dearborn St.
Chicago 10, Ill.

Halstead, Frank G., Ph. D.
University of Mississippi
University, Miss.

Hammargren, Adelaide
Librarian
CIBA Pharmaceutical Products
Summit, N. J.

Hancock, J. Duffy, M. D.
705 Brown Bldg.
Louisville 2, Ky.

Hartung, Edward F., M. D.
580 Park Ave.
New York 21, N. Y.

Hashinger, Edward H., M. D.
Univ. of Kansas Medical Center
Kansas City 12, Kan.

Hayman, Joseph M., Jr., M. D.
Tufts Univ. School of Medicine
136 Harrison Ave.
Boston 11, Mass.

Heard, James D., M. D.
121 University Pl.
Pittsburgh 13, Pa.

Heaton, Claude E., M. D.
205 E. 69th St.
New York 21, N. Y.

Henkle, Herman H.
The John Crerar Library
86 E. Randolph St.
Chicago 1, Ill.

Hepburn, Joseph Samuel, M. D.
2045 N. Franklin St.
Philadelphia 22, Pa.

Hetrick, J. A. W., M. D.
5th Ave. at 105th St.
Flower and Fifth Ave. Hospitals
New York 29, N. Y.

Hoff, Hebbel, M. D.
Dept. of Physiology
Baylor Univ. College of Medicine
Houston 5, Texas

Holbrook, J. H., M. D.
Westlawn
Ancaster, Ont., Canada

Holbrook, Thomas J., M. D.
First Huntington National Bank Bldg.
Huntington 1, W. Va.

Holmes, E. M., Jr., M. D.
1208 Park Ave.
Richmond, Va.

Hooker, John W., M. D.
Memorial Hospital
Danville, Va.

Horine, Emmet F., M. D.
High Acres
Brooks, Ky.

Hu, Tin-An, M. D.
500 W. 122nd St., Apt. 2C5
New York 27, N. Y.

Hungate, Carroll P., M. D.
535 Argyle Bldg.
Kansas City 6, Mo.

Hunter, Curwood R., M. D.
506 Oak St.
Cincinnati 19, Ohio

Hunter, Robert J., M. D.
928 N. 63rd St.
Philadelphia 31, Pa.

Inlow, W. D., M. D.
The Inlow Clinic
103 W. Washington St.
Shelbyville, Ind.

Irons, Ernest E., M. D.
122 S. Michigan Ave.
Chicago 37, Ill.

Irvin, E. A., M. D.
Medical Director
Ford Motor Co.
The American Road
Dearborn, Mich.

Jackson, Chevalier L., M. D.
3401 N. Broad St.
Philadelphia 40, Pa.

Jackson, Everett A.
712 Marietta Pl., N. W., Apt. 102
Washington 11, D. C.

Jacobs, Maurice S., M. D.
1831 Delancey Pl.
Philadelphia 3, Pa.

Jager, Thor, M. D.
611 Beacon Bldg.
Wichita 2, Kan.

Jarcho, Saul, M. D.
145 Central Park West
New York 23, N. Y.

Jelks, Edward, M. D.
2244 St. Johns Ave.
Jacksonville 4, Fla.

Jentgen, Louis N., M. D.
206 E. State St.
Columbus 15, Ohio

Johnson, Edward C.
813 Diversey Pkwy.
Chicago 14, Ill.

Johnson, Victor, M. D.
626 S. W. 5th St.
Rochester, Minn.

Jokl, Ernst, M. D.
Univ. of Kentucky
Lexington, Ky.

Joy, Robert J. T., Capt., MC
Walter Reed Army Hospital
Washington, D. C.

Kanner, Leo, M. D.
4510 Wentworth Rd.
Baltimore 7, Md.

Keeney, Arthur H., M. D.
2781 Maple Rd.
Louisville 5, Ky.

Kehoe, Robert A., M. D.
345 Resor Ave.
Cincinnati 20, Ohio

Kelley, Charles B., M. D.
1009 79th St.
North Bergen, N. J.

Kelly, Emerson Crosby, M. D.
269 S. Main Ave.
Albany 8, N. Y.

Kelly, Mrs. Emerson Crosby
269 S. Main Ave.
Albany 8, N. Y.

Kelly, Herbert T., M. D.
1900 Spruce St.
Philadelphia 3, Pa.

Keltz, Bert F., M. D.
Pasteur Bldg.
1111 N. Lee
Oklahoma City 3, Okla.

Keys, Thomas E.
Mayo Clinic Library
Rochester, Minn.

Kiefer, Joseph H., M. D.
1240 W. North Shore Ave.
Chicago 26, Ill.

King, Lester S., M. D.
836 Wellington Ave.
Chicago 14, Ill.

Kisch, Bruno, M. D.
845 West End Ave.
New York 25, N. Y.

Klickstein, Herbert S., M. D.
2125 Locust St.
Philadelphia 3, Pa.

Knisley, Mrs. Mary Jane
Rt. 3, Box 347
Orlando, Fla.

Korman, Norman Ritt, M. D.
18252 Steel Ave.
Detroit 35, Mich.

Koudelka, Mrs. Janet B.
5922 Bellona Ave.
Baltimore 12, Md.

Kraft, Irvin A., M. D.
Dept. of Psychiatry
Baylor Medical School
Houston 25, Tex.

Krantz, John C., Jr., Ph. D.
Dept. of Pharmacology
Univ. of Maryland School of Medicine
Lombard and Greene Sts.
Baltimore 1, Md.

Kronenberg, Sanford, M. D.
636 Los Altos Ave.
Long Beach 14, Calif.

Kuhns, William J., M. D.
Central Blood Bank
3601 5th Ave.
Pittsburgh 13, Pa.

Kupka, Edward, M. D.
Calif. Dept. of Public Health
2151 Berkeley Way
Berkeley 4, Calif.

LaFia, David J., M. D.
Jefferson Medical College
Neurosurgical Research Laboratory
1025 Walnut St.
Philadelphia 7, Pa.

Lam, Conrad R., M. D.
Dept. of Surgery
Henry Ford Hospital
Detroit 2, Mich.

Langner, Mrs. Mildred Crowe
Jackson Memorial Library
Univ. of Miami School of Medicine
1000 N. W. 17th St.
Miami 36, Fla.

Larkey, Sanford V., M. D.
1900 E. Monument St.
Baltimore 5, Md.

Larrick, Lloyd E., M. D.
786 Ludlow Ave.
Cincinnati 20, Ohio

Latham, Ernest H., M. D.
125 Glenwood St.
Lowell, Mass.

Lawson, Hampden C., M. D.
Dept. of Physiology
Univ. of Louisville School of Medicine
101 W. Chestnut St.
Louisville 2, Ky.

Leake, Chauncey D., Ph. D.
Ohio State Univ.
College of Medicine
Columbus 10, Ohio

Leaman, William G., M. D.
Presidential Apts. B909
Philadelphia 31, Pa.

LeBlond, Sylvio, M. D.
Hotel-Dieu St.-Vallier
Chicoutimi, P. Q., Canada

Leedham, Charles L., M. D.
2020 E. 93rd St.
Cleveland 6, Ohio

Leikind, Morris C.
1334 Aspen St., N. W.
Washington 12, D. C.

Lesnick, Gerson J., M. D.
3 E. 76th St.
New York 21, N. Y.

L'Esperance, Elise S., M. D.
535 Pelham Manor Rd.
Pelham Manor
New York 65, N. Y.

Levine, Victor E., M. D.
Creighton Univ. School of Medicine
Omaha 2, Neb.

Licht, Sidney, M. D.
360 Fountain St.
New Haven, Conn.

Light, John J. B., M. D.
25 N. 9th St.
Lebanon, Pa.

Livingston, Robert B., M. D.
National Institutes of Health
Bldg. 10, Room 3N242
Bethesda 14, Md.

Loehr, William M., M. D.
1426 E. Kessler Blvd.
Indianapolis 20, Ind.

Long, Esmond R., M. D.
Pedlar Mills, Va.

Longacre, J. J., M. D.
1503 Carew Tower
Cincinnati 2, Ohio

Lorhan, Paul H., M. D.
6451 Sagamore
Kansas City 15, Mo.

Fraser, Miss Helen A.
620 Providence St.
Albany 8, N. Y.

Low, Frank Norman, Ph. D.
Dept. of Anatomy
LSU School of Medicine
New Orleans 12, La.

Lowis, Samuel, M. D.
475 Commonwealth Ave.
Boston 15, Mass.

McCarty, Arthur C., M. D.
Mockingbird Hill
Louisville, Ky.

McClellan, Walter S., M. D.
406 Whitehead Circle
Chapel Hill, N. C.

McDaniel, W. B., 2d, Ph. D.
College of Physicians of Philadelphia
19 S. 22nd St.
Philadelphia 3, Pa.

McGovern, John P., M. D.
3509 Montrose Blvd.
Houston, Tex.

McGrane, Reginald Charles, Ph. D.
Dept. of History
Univ. of Cincinnati
Cincinnati, Ohio

McHenry, Lawrence, M. D.
61 Park Dr., Apt. 12
Boston, Mass.

MacKinney, Loren C., Ph. D.
Univ. of North Carolina
Chapel Hill, N. C.

McKusick, Victor A., M. D.
The Johns Hopkins Hospital
Baltimore 5, Md.

McLean, Franklin C., M. D.
Dept. of Physiology
Univ. of Chicago
Chicago 37, Ill.

MacLean, Paul D., M. D.
National Institutes of Health
Bethesda 14, Md.

McLendon, William W., M. D.
Dept. of Pathology
College of Physicians and Surgeons
630 W. 168th St.
New York 32, N. Y.

McNinch, Joseph H., Brig. Gen., MC
Medical Sect., HQ. U. S. Army, Japan
APO 343
San Francisco, Calif.

Magoun, H. W., Ph. D.
School of Medicine
Univ. of California
Los Angeles 24, Calif.

Major, Ralph H., M. D.
Dept. of Internal Medicine
Univ. of Kansas Medical Center
Kansas City 12, Kan.

Maltby, George L., M. D.
31 Bramhall St.
Portland, Me.

Manson, Miss Clara S.
1901 California St.
San Francisco 9, Calif.

Maroney, John A., M. D.
Bancroft Hotel
Worcester 8, Mass.

Martí-Ibáñez, Félix, M. D.
MD Publications, Inc.
30 E. 60th St.
New York 22, N. Y.

Maslansky, Manuel M., D. D. S.
49 Longview Ave.
White Plains, N. Y.

Mauer, Edgar F., M. D.
1930 Wilshire Blvd.
Los Angeles 57, Calif.

Mayer, Claudius F., M. D.
5513 39th St., N. W.
Washington 15, D. C.

Mayfield, Frank H., M. D.
506 Oak St.
Cincinnati 19, Ohio

Meibauer, Robert
154 Nassau St.
New York 38, N. Y.

Meibauer, Robert Henry, D. D. S.
154 Nassau St.
New York 38, N. Y.

Menaker, Walter, M. D.
898 Fairmount Pl.
New York 60, N. Y.

Merritt, J. Webster, M. D.
2063 Oak St.
Jacksonville 4, Fla.

Middleton, William S., M. D.
4200 Cathedral Ave., N. W.
Washington 16, D. C.

Miller, Miss Genevieve, Ph. D.
2485 Fairmount Blvd.
Cleveland Heights 6, Ohio

Miller, Herbert C., M. D.
6408 W. 66th St.
Overland Park, Kan.

Miller, Hyman, M. D.
201 S. Lasky Dr.
Beverly Hills, Calif.

Mills, Earl L., M. D.
59 Mission Rd.
Wichita, Kan.

Moes, Robert, M. D.
2007 Wilshire Blvd.
Los Angeles 57, Calif.

Montague, Joseph Franklin, M. D.
104 E. 40th St.
New York 16, N. Y.

Montgomery, Lall G., M. D.
Ball Memorial Hospital
Muncie, Ind.

Moore, Floy Jack, M. D.
Dept. of Psychiatry
Univ. of Mississippi Medical Center
Jackson, Miss.

Mora, George, M. D.
371 Angell St.
Providence 6, R. I.

Morrison, Hyman, M. D.
483 Beacon St.
Boston 15, Mass.

Moschcowitz, Eli, M. D.
25 W. 68th St.
New York 23, N. Y.

Nadeau, Gabriel, M. D.
Rutland State Sanitarium
Rutland, Mass.

Naylor, Miss Mildred V.
Martinsville, N. J.

Nettleship, Anderson, M. D.
2023 Broadway
Little Rock, Ark.

Neuman, Albert, M. D.
3829 Hall St.
Dallas 19, Tex.

Newmayer, S. Weir, M. D.
1703 W. Jefferson St.
Philadelphia 21, Pa.

Newton, Mildred E., Ed. D.
School of Nursing
Ohio State Univ.
Columbus 10, Ohio

Nichol, E. Sterling, M. D.
Suite 405 Five Fifty Bldg.
550 Brickell Ave.
Miami 32, Fla.

Nittis, Savas, M. D.
127 E. 64th St.
New York 21, N. Y.

Nobili, Conrad, M. D.
34 Hancock Ct.
Quincy, Mass.

Northington, James M., M. D.
2148 Malvern Rd.
Charlotte 7, N. C.

Norwood, W. F., Ph. D.
College of Medical Evangelists
1720 Brooklyn Ave.
Los Angeles 33, Calif.

O'Malley, Charles Donald, Ph. D.
Dept. of History
Stanford Univ.
Stanford, Calif.

Oppenheimer, Jane M., Ph. D.
Dept. of Biology
Bryn Mawr College
Bryn Mawr, Pa.

Orlandella, Anthony W., M. D.
Charity Hospital of Louisiana
New Orleans 12, La.

Osius, Eugene A., M. D.
901 David Whitney Bldg.
Detroit 26, Mich.

Owen, Gilbert R., M. D.
234 S. Ardmore St.
Los Angeles, Calif.

Owens, Louis B., M. D.
1102 Carew Tower
Cincinnati 2, Ohio

Ozer, Mark N., M. D.
Stanford-Lane Hosp.
Clay and Webster Sts.
San Francisco, Calif.

Paddock, Royce, M. D.
965 Broad St.
Newark 2, N. J.

Padis, Nicholas, M. D.
255 S. 17th St.
Philadelphia 3, Pa.

Paine, George E., M. D.
Gage-Hall Clinic
100 W. 1st St.
Hutchinson, Kan.

Paryzek, Harry V., M. D.
406 Republic Bldg.
Cleveland 15, Ohio

Pasamanick, Benjamin, M. D.
Columbus Receiving Hospital and State
Institute of Psychiatry
University Health Center
Columbus 10, Ohio

Pate, John R., M. D., M. P. H.
Southwest Health Center
Delaware Ave. and Eye St., S. W.
Washington 24, D. C.

Paterson, Robert G., Ph. D.
Box 1391
Tryon, N. C.

Patterson, Miss Marian A.
Academy of Medicine Library
288 Bloor St. W.
Toronto 5, Ont., Canada

Pavey, Charles W., M. D.
2265 N. High St.
Columbus 1, Ohio

Pearlman, Ira W., M. D.
4700 Bradley Blvd.
Chevy Chase 15, Md.

Peete, Don Carlos, M. D.
3717 Belleview Ave.
Kansas City 11, Mo.

Pelner, Louis, M. D.
1352 Carroll St.
Brooklyn 13, N. Y.

Penfield, Wilder G., M. D.
4302 Montrose Ave.
Montreal 6, P. Q., Canada

Perkins, Mrs. Henrietta T.
131 Elm St.
West Haven 16, Conn.

Pierce, I. H., Ph. D.
262 Medical Laboratories
Univ. of Iowa
Iowa City, Iowa

Piersol, George M., M. D.
308 Kent Rd.
Wynnewood, Pa.

Pliefke, Miss Frida
Rush Medical College
1758 W. Harrison St.
Chicago 12, Ill.

Plotkin, Stanley Alan, M. D.
3819 Chestnut St.
Philadelphia 4, Pa.

Preston, Robert H., M. D.
711 Carew Tower
Cincinnati 2, Ohio

Prichard, Robert Williams, M. D.
Dept. of Pathology
Bowman Gray School of Medicine
Winston-Salem, N. C.

Pritikin, Roland I., M. D.
Talcott Bldg.
Rockford, Ill.

Proskauer, Curt, D. D. S.
Apt. 6N
720 Fort Washington Ave.
New York 40, N. Y.

Purtle, Miss Helen R.
5803 Walton Rd.
Bethesda 14, Md.

Rabb, Mrs. Albert L.
4146 N. Illinois St.
Indianapolis 8, Ind.

Rabbits, Edward W.
c/o Surgical Staff
Midtown Hospital
309 E. 49th St.
New York, N. Y.

Radbill, Samuel X., M. D.
7043 Elmwood Ave.
Philadelphia 42, Pa.

Reals, William J., M. D.
3400 E. Grand Ave.
Wichita 17, Kan.

Reese, Hans H., M. D.
Shorewood Hills
Madison 5, Wis.

Reichert, Philip, M. D.
480 Park Ave.
New York 22, N. Y.

Reiter, Robert A., M. D.
3408 Windsor Ave.
Baltimore 16, Md.

Reynolds, Lawrence, M. D.
10 Peterboro St.
Detroit 1, Mich.

Richmond, Mrs. Phyllis Allen, Ph. D.
284 Maplewood Ave.
Rochester 13, N. Y.

Riese, Walther, M. D.
Medical College of Virginia
Richmond, Va.

Rinehart, R. J., D. D. S.
Univ. of Kansas City School of Dentistry
Kansas City—Western Dental College
10th & Troost Ave.
Kansas City 6, Mo.

Rising, Jesse D., M. D.
Univ. of Kansas Medical Center
Kansas City 12, Kan.

Robbins, Isidore L., M. D.
914 Pere Marquette Bldg.
New Orleans 12, La.

Robinson, Mrs. Ida Marian
Univ. of Maryland
Library of Medicine, Dentistry and Pharmacy
Lombard and Greene Sts.
Baltimore 1, Md.

Rodnan, Gerald P., M. D.
Dept. of Medicine
Univ. of Pittsburgh School of Medicine
Pittsburgh 13, Pa.

Rogers, Frank B., Lt. Col., MC
10316 Freeman Pl.
Kensington, Md.

Rogers, Fred B., M. D.
Temple Univ. School of Medicine
Philadelphia 40, Pa.

Roney, James G., Jr., M. D.
225 37th Ave.
San Mateo, Calif.

Roofe, Paul G., M. D.
Dept. of Anatomy
Univ. of Kansas
Lawrence, Kan.

Rosen, George, M. D., Ph. D.
285 Riverside Dr.,
New York 25, N. Y.

Rosenberg, Henry, M. D.
260 West End Ave.
New York 23, N. Y.

Rosenberg, J. C., M. D.
Univ. of Minnesota Hospitals
Minneapolis 14, Minn.

Rosenberg, Leo, M. D.
5926 N. Main St.
Dayton 15, Ohio

Rosenthal, Robert, M. D.
437 Lowry Medical Arts Bldg.
St. Paul 2, Minn.

Rothenberg, Robert C., M. D.
Doctors Bldg.
19 Garfield Pl.
Cincinnati 2, Ohio

Salmonsen, Miss Ella M.
The John Crerar Library
86 E. Randolph St.
Chicago 1, Ill.

Samaras, Stelios C., M.D.
Creighton Univ. School of Medicine
302 N. 14th St.
Omaha 2, Neb.

Saunders, John B. deC. M., M. D.
1412 Willard St.
San Francisco 17, Calif.

Saunders, Lawrence
W. B. Saunders & Co.
216 W. Washington Sq.
Philadelphia 5, Pa.

Scarlett, E. P., M. B.
216 Sixth Ave., W.
Calgary, Alta., Canada

Schafer, Paul W., M. D.
Television Division
Walter Reed Army Medical Center
Washington 12, D. C.

Schein, Albert J., M. D.
942 Fifth Ave.
New York 21, N. Y.

Schlaeger, Ralph, M. D.
Presbyterian Hosp., Radiology Dept.
622 W. 168th St.
New York 32, N. Y.

Schneck, Jerome M., M. D.
26 W. 9th St.
New York 11, N. Y.

Schneider, A. Benedict, M. D.
10515 Carnegie Ave.
Cleveland 6, Ohio

Schroth, Irving H., M. D.
701-2 Carew Tower
Cincinnati 2, Ohio

Schullian, Miss Dorothy M., Ph. D.
National Library of Medicine
11,000 Euclid Ave.
Cleveland 6, Ohio

Schuman, Henry
2211 Broadway
New York 24, N. Y.

Schwartz, L. Laszlo, D. D. S.
2 E. 54th St.
New York 22, N. Y.

Schweitzer, Mrs. Rose M.
310 W. 94th St.
New York 25, N. Y.

Sciorsci, Edward F., M. D.
609 Bloomfield St.
Hoboken, N. J.

Segall, Harold, M. D.
1538 Sherbrooke St., W.
Montreal, P. Q., Canada

Selleck, Henry B.
731 Covington Dr., Apt. 202
Detroit 3, Mich.

Sellers, Lyle M., M. D.
3707 Gaston Ave.
Dallas 10, Tex.

Sexton, Miss Anna M.
Div. of Laboratories & Research
N. Y. State Dept. of Health
New Scotland Ave.
Albany 8, N. Y.

Shaffel, Norman, M. D.
2705 Bedford Ave.
Brooklyn 10, N. Y.

Sharpe, William D.
The Johns Hopkins Medical School
710 N. Washington St.
Baltimore 5, Md.

Shelley, Harry S., M. D.
3725 Estes Rd.
Nashville 12, Tenn.

Shepherd, Glen R., M. D.
40 E. Oak St.
Chicago 11, Ill.

Sheps, Cecil G., M. D., M. P. H.
Beth Israel Hospital
330 Brookline Ave.
Boston 15, Mass.

Shirkey, Harry C., M. D.
301 Erkenbrecher Ave.
Cincinnati 29, Ohio

Shister, Hyman E., M. D., C. M.
216 Medical Arts Bldg.
Montreal, P. Q., Canada

Shore, Maurice J., Ph. D.
255 W. 90th St.
New York 24, N. Y.

Shryock, Richard H., Ph. D.
127 S. 5th St.
Philadelphia 6, Pa.

Siegel, Irwin M., M. D.
5005 W. Adams St.
Chicago 44, Ill.

Siegel, Rudolph E., M. D.
458 W. Delavan Ave.
Buffalo 13, N. Y.

Silver, George A., M. D.
Montefiore Hospital
Gunhill Rd. & Jerome Ave.
New York 67, N. Y.

Simon, S. W., M. D.
Veterans Administration Center
4100 W. 3rd St.
Dayton, Ohio

Simpson, Edmund E., M. D.
504 Blackwood St.
North Sacramento 15, Calif.

Skoog, A. L., M. D.
1911 Leman St.
South Pasadena, Calif.

Slayter, Malcolm F., Maj., USAF (MSC)
3902nd USAF Hospital
Offutt Air Force Base, Neb.

Smith, David T., M. D.
Duke Hospital
Durham, N. C.

Smithcors, J. Frederick, D. V. M., Ph. D.
Dept. of Anatomy
Michigan State Univ.
College of Veterinary Medicine
East Lansing, Mich.

Snapper, I., M. D.
Beth-El Hospital
Rockaway Parkway & Linden Blvd.
Brooklyn 12, N. Y.

Snyder, Clifford C., M. D.
Five Fifty Bldg.
550 Brickell Ave.
Miami 32, Fla.

Sonnedecker, Glenn, Ph. D.
American Institute of the History of Pharmacy
Univ. of Wisconsin School of Pharmacy
Madison 6, Wis.

Sparer, Phineas J., M. D.
5277 Collingwood Rd.
Memphis 17, Tenn.

Spector, Benjamin, M. D.
Tufts Univ. School of Medicine
136 Harrison Ave.
Boston 11, Mass.

Squier, Theodore L., M. D.
2619 E. Wood Pl.
Milwaukee 11, Wis.

Stanton, Miss Madeline E.
281 Edwards St.
New Haven 11, Conn.

Stapleton, William J., Jr., M. D.
641 David Whitney Bldg.
Detroit 26, Mich.

State, David, M. D.
Cedars of Lebanon Hospital
4833 Fountain Ave.
Los Angeles 29, Calif.

Stecher, R. M., M. D.
City Hospital
3395 Scranton Rd.
Cleveland 9, Ohio

Steegmann, A. Theodore, M. D.
Univ. of Kansas Medical Center
Kansas City 12, Kan.

Stenn, Frederick, M. D.
6400 S. Kedzie Ave.
Chicago 29, Ill.

Stevenson, Lloyd G., M. D.
Osler Library, McGill Univ.
Montreal 2, P. Q., Canada

Stoddard, Leland D., M. D.
Dept. of Pathology
Medical College of Georgia
Augusta, Ga.

Strecker, Edward A., M. D.
111 N. 49th St.
Philadelphia 39, Pa.

Striker, Cecil, M. D.
1019 Provident Bank Bldg.
Cincinnati 2, Ohio

Stuff, Miss Marjorie Ann
2034 Cornell Rd., Apt. 47
Cleveland 6, Ohio

Sturgis, Cyrus C., M. D.
Univ. of Michigan
Simpson Memorial Institute
Ann Arbor, Mich.

Sturgis, Samuel B., M. D.
349 Wister Rd.
Wynnewood, Pa.

Talbot, Mrs. Nell Snow
2700 Broadway Ave.
Evanston, Ill.

Tallmadge, G. Kasten, M. D., Ph. D.
Marquette Univ. School of Medicine
561 N. 15th St.
Milwaukee 3, Wis.

Temkin, Mrs. C. Lilian
419 Alabama Rd.
Towson 4, Md.

Temkin, Owsei, M. D.
1900 E. Monument St.
Baltimore 5, Md.

Terrell, T. C., M. D.
Terrell's Laboratories
Medical Arts Bldg.
Fort Worth 2, Tex.

Terris, Milton, M. D.
111 Irving Terrace
Kenmore 23, N. Y.

Thom, Robert A.
6160 W. Surrey Rd.
Birmingham, Mich.

Thomas, Charles C
Charles C Thomas Publisher
301-327 E. Lawrence Ave.
Springfield, Ill.

Thomson, Miss Elizabeth H.
687 Ridge Rd.
Hamden 17, Conn.

Thomson, Stewart C., M. D.
1325 Mayo
Univ. of Minnesota
Minneapolis 14, Minn.

Thorek, Max, M. D.
850 W. Irving Park Rd.
Chicago 13, Ill.

Tjomsland, Anne, M. D.
R. F. D. No. 1
Putnam Valley, N. Y.

Tocantins, Leandro M., M. D.
Dept. of Medicine
Jefferson Medical College
1025 Walnut St.
Philadelphia 7, Pa.

Tourney, Garfield, M. D.
Lafayette Clinic
951 E. Lafayette
Detroit 7, Mich.

Tower, Paul, M. D.
2007 Wilshire Blvd.
Los Angeles 57, Calif.

Trufant, Samuel A., M. D.
3231 Burnet Ave.
Cincinnati 29, Ohio

Tucker, David A., Jr., M. D.
3518 Bayard Dr.
Cincinnati 8, Ohio

Tucker, John P., M. D.
3104 Morley Rd.
Shaker Heights 22, Ohio

Tucker, Wilson Randolph, M. D.
3518 Bayard Dr.
Cincinnati 8, Ohio

Valk, William L., M. D.
Univ. of Kansas Medical Center
Kansas City 12, Kan.

Veith, Ilza, Ph. D.
Dept. of Medicine
Univ. of Chicago
Chicago 37, Ill.

Viets, Henry R., M. D.
20 Chapel St.
Brookline 46, Mass.

Von Witzleben, Henry D., M. D.
Veterans Administration Hospital
Palo Alto, Calif.

Wainerdi, Harold R., M. D.
20 Sutton Pl. South
New York 22, N. Y.

Wakefield, Howard, M. D.
5466 S. Everett Ave.
Chicago 15, Ill.

Walker, James H., M. D.
1112 Virginia St., E.
Charleston 1, W. Va.

Walker, William B., Ph. D.
Chalet Gaby
Gstaad, Switzerland

Wallman, Lester J., M. D.
Mary Fletcher Hospital
Burlington, Vt.

Ware, George William, M. D.
207 Farragut Medical Bldg.
Washington, D. C.

Waring, J. I., M. D.
82 Rutledge Ave.
Charleston 37, S. C.

Waring, James J., M. D.
910 Gaylord St.
Denver 6. Col.

Wartman, William B., M. D.
Northwestern Medical School
303 E. Chicago Ave.
Chicago, Ill.

Weber, John James, M. D.
86-13 105th St.
Richmond Hill 18, N. Y.

Webster, Jerome P., M. D.
622 W. 168th St.
New York 32, N. Y.

Webster, John E., M. D.
801 David Whitney Bldg.
Detroit 26, Mich.

Wechsler, Israel S., M. D.
70 E. 83rd St.
New York 28, N. Y.

Weiner, Dora B., Ph. D.
3 Yarmouth Rd.
White Plains, N. Y.

Weinstein, B. Bernard, M. D.
1421 Delachaise St.
New Orleans 15, La.

Weiss, Morris M., M. D.
Aura Rd., R. R. 1
Louisville 7, Ky.

Weiss, Samuel, M. D.
435 E. 79th St.
New York 21, N. Y.

Weld, Stanley B., M. D.
85 Jefferson St.
Hartford 14, Conn.

Wells, Benjamin B., M. D.
Veterans Administration Hospital
1601 Perdido St.
New Orleans 12, La.

Wells, Warner L., M. D.
704 E. Franklin St.
Chapel Hill, N. C.

Wenner, Herbert A., M. D.
Univ. of Kansas Medical Center
Kansas City 12, Kan.

Westrup, Arthur William, M. D.
204 E. Big Bend Blvd.
Webster Groves 19, Mo.

Wheeler, C. J., Jr., M. D.
7655 Hereford St.
Houston 17, Tex.

White, J. Warren, M. D.
2000 Ualakaa St.
Honolulu 14, Hawaii

White, William, Ph. D.
Wayne State Univ.
Detroit 2, Mich.

Whittaker, Alfred H., M. D.
1427 E. Jefferson Ave.
Detroit 7, Mich.

Wilhelmj, C. M., M. D.
Creighton Univ. School of Medicine
302 N. 14th St.
Omaha 2, Neb.

Williams, Huntington, M. D., Dr. P. H.
Baltimore City Health Dept.
Baltimore 3, Md.

Williams, Vincent T., M. D.
836 Argyle Bldg.
Kansas City 6, Mo.

Willis, Charles D., Capt., MC
Hq., 3rd Inf. Division
Office Div. Surgeon
APO 36
New York, N. Y.

Wilson, Sloan J., M. D.
5618 W. 62nd St.
Mission, Kan.

Wilson, Vernon E., M. D.
Univ. of Kansas Medical Center
Kansas City 12, Kan.

Winkelstein, Norman, M. D.
550 Forest Ave.
Buffalo 22, N. Y.

Wishard, William Niles, Jr., M. D.
1711 N. Capitol Ave.
Indianapolis 7, Ind.

Wohl, Miss Sonia S.
3535 DeKalb Ave.
Bronx 67, N. Y.

Wolfson, Irving, M. D.
526 Linwood Ave.
Buffalo 9, N. Y.

Woodard, Parke H., M. D.
Dept. of Physiology
Univ. of Kansas
Lawrence, Kan.

Woody, McIver, M. D.
552 Westminster Ave.
Elizabeth, N. J.

Woolley, LeGrand, M. D.
903 Medical Arts Bldg.
Salt Lake City 1, Utah

Wreden, William P.
60 Parkwood
Atherton, Calif.

Wright, Claude-Starr, M. D.
Dept. of Medicine
Medical College of Georgia
Augusta, Ga.

Young, Raymond L., M. D.
241 Washington Ave.
Santa Fe, N. M.

Zakon, Samuel J., M. D.
1 N. Pulaski Rd.
Chicago 24, Ill.

Zeitlin, Jacob
Zeitlin and Ver Brugge
815 N. La Cienega Blvd.
Los Angeles 46, Calif.

Zeller, Michael, M. D.
4753 Broadway
Chicago 40, Ill.

Zeman, Frederic D., M. D.
111 E. 88th St.
New York 28, N. Y.

Zilboorg, Gregory, M. D.
33 E. 70th St.
New York 21, N. Y.

Zimmerman, Leo M., M. D.
55 E. Washington St.
Chicago 2, Ill.

Zisowitz, Milton L.
166-28 17th Rd.
Whitestone 57, N. Y.

NONRESIDENT MEMBERS

Ackerknecht, Erwin H., M. D.
Institut fuer Medizingeschichte
Universitaet
Zurich, Switzerland

Belloni, Luigi, M. D.
Piazza Wagner 4
Milan, Italy

Bett, W. R., M. D.
11, The Avenue
Bedford Park
London W4, England

Brown, Keith MacArthur, M. D.
Ascalon Bldg., 22A Hunter St.
Parramatta, N. S. W.
Australia

Buess, Heinrich, Prof. Dr. med.
Feierabendstrasse 37
Basel, Switzerland

Cohen, R. A., D. D. S.
2, Old Square
Warwick, England

Fastlicht, Samuel, D. D. S.
Londres 85, Des. 401
Mexico 6, D. F., Mexico

Guthrie, Douglas, M. D.
21 Clarendon Crescent
Edinburgh, Scotland

James, Robert R., F. R. C. S.
Bryn, Moorfield Rd.
Woodbridge, Suffolk
England

Kim, Doo Jong, M. D.
Seoul National Univ. College of Medicine
Dept. of the History of Medicine
Yun-Ken-Dong
Seoul, Korea

Margetts, Edward L., M. D.
Mathari Mental Hospital
Box 663
Nairobi, Kenya

Medina, Francisco, M. D.
6A Avenida Patricio Sanz 635
Colonia Del Valle
Mexico 12, D. F., Mexico

Mena Serra, César A., M. D., D. D. S.
M No. 304, Vedado
Havana, Cuba

Ramos, Pedro, M. D.
Plaza de la República 7
Mexico, D. F., Mexico

de Saussure, Raymond, M. D.
Rue De La Tertasse 2
Geneva, Switzerland

Subba Reddy, D. V., M. B., B. S., M. Sc.
Institute of History of Medicine
Gandhi Medical College Buildings
Basheer Bagh, Hyderabad—Deccan
Andhra Pradesh, India

Villaverde, Manuel, M. D.
F No. 267, Vedado
Havana, Cuba

BOOK REVIEWS

CHARLES LICHTENTHAELER. *La Médecine Hippocratique.* Deuxième Série. (Études sur le raisonnement clinique). Boudry, Neuchâtel: Éditions de la Baconnière, 1957. 144 pp., Portrait.

The book is the second volume in the series of the author's studies on thought in clinical medicine (*études sur le raisonnement clinique*). We learn from the author that it was indeed clinical experience which aroused his interest in historical studies (p. 16) the aim of which culminates in his effort to grasp and to formulate the original and specific structure of Hippocratic medicine and not simply its all too frequently stressed and questionable nature as a forerunner of modern medicine. The author believes that experimental thought was preceded by "Hippocratic thought," the principle of analogy being the most significant criterion of the latter. The method used by the author can best be designated as that of inner evidences, since he strives for an intelligible and intelligent interpretation of concordant and conflicting texts, always by relating them to the whole of medical experience and of the Hippocratic collection itself. Ultimately, the author hopes to derive from his new insight and from a "Return to Hippocrates" great benefit for contemporary medicine, the deficiencies and ambiguities of which are vigorously stressed, and their sources traced to the undue appraisal of factual knowledge, to the underestimation of reasoning power, imagination and productive instead of purely retentive intelligence, to the social conditions of learning, teaching, and practice, and to the schedule embodying all of these factors. In more than one passage the author insists on the need, so painfully felt today for controlled *thought* in medicine (*reprise de conscience intellectuelle de la médecine et de sa mission;* p. 31). The study of medical history is called forth as instrumental in achieving this goal. The usefulness of the principles of historical research, adopted by the author, is illustrated by a number of examples furnished by the author's own discoveries, among which the distinction arrived at between physical heat and innate heat (or source of life) deserves greatest attention, since it throws new light on the medical doctrines of the past. His interpretation of the first aphorism, which he inserts as the final link into the history of an ever more cautious prognostic thought in Hippocratic medicine, is of no less importance. Throughout the book the author endeavors to project the various stages of medical history and medical thought on the stages of history at large, human intelligence, and civilization.

Few books on ancient medicine have come to this reviewer's knowledge which, through their author's combined linguistic learning, philosophical erudition, and clinical sense, leave the reader with equal satisfaction and substantial enrichment.

WALTHER RIESE

THOMAS KELLY. *George Birkbeck: Pioneer of Adult Education,* Liverpool: University Press, 1957. 380 pp. Ill. 45 s.

Mr. Kelly, in his volume on *George Birkbeck: Pioneer in Adult Education,* attempts to solve one of the difficult problems which face an author who attempts to write a definitive biography of a man who is a personality in his own right as well as the recognized founder of a movement of great educational importance—the task of maintaining a proper balance between the contributions which that individual makes during his lifetime toward the movement he initiates, and the development of that movement once it has progressed beyond the influence of its founder. George Birkbeck was a Quaker doctor and teacher of the late eighteenth and early nineteenth centuries, and the founder of mechanics' institutes in England, particularly the London Mechanics' Institution, presently known as Birkbeck College. Because the only known biographical treatment of Birkbeck, that done by J. G. Godard in 1894, was outmoded and poorly documented and because, according to Kelly, the history of mechanics' institutes has never been fully explored, the author produced his dual study. Through no fault of Mr. Kelly, the result is not a particularly good one—the two topics, even though singularly related, simply do not coalesce well.

As Book I, "The Life and Work of George Birkbeck," traces his early life and medical education in Edinburgh and London, and Birkbeck's private and professional life as a doctor of considerable reputation in London, there emerges a fascinating account of the birth and life-struggle of the attempts on the part of certain educationists and politicians to provide opportunity for the working-class to engage in a systematic study of science. Establishment of mechanics' institutes, of course, was the result, and Mr. Kelly points out that this movement cannot be traced to a single person or mind, but in reality was the result of a number of contributing factors—the increasing need for skilled workers possessing at least a modicum of scientific knowledge; the growing interest on the part of people in general in science; the general movement for provision of popular education; and the working-class movement for political and economic reform.

Mr. Kelly has sifted through an enormous amount of diaries, correspondence, speeches, magazine articles, and other documents of the period in order to trace this movement for adult education and Dr. Birkbeck's intense interest and devotion to it. As a consequence, the reader is provided with a wealth of detail concerning the political struggles of the times, the attacks made by members of the clergy (and others) because of too much attention to science and too little to religion in the institutes, the personal antagonisms and jealousies between Birkbeck and others working in the movement, and the financial crises and growing pains that faced the London Mechanics' Institution and the others during the first years of their existence. Through all the vicissitudes, George Birkbeck remained a staunch supporter in the multiple role of teacher, president, and financial contributor. While his ego may have been great, so also was his devotion, not only to the mechanics' institutes and his own medical career, but to other philanthropic causes as well. Mr. Kelly's delineation of Birkbeck; his revelation of the myriad of details of the times; his occasional descriptions of medical education, apprenticeship, and practices; and his accounts of some of the leading figures of the early nineteenth century make Book I worth reading in spite of the sometimes pedantic style.

Book II, "The General Development of the Mechanics' Institute Movement," deals primarily with the spread of the movement outside London and its early collapse and subsequent recovery of popularity. On the basis of the somewhat sparse evidence now available—many of the institutes no longer have their early records—the author has constructed a number of charts, maps, and sets of figures to clarify the locations of these institutes and their attendance records, and to help explain the change in character of the institute as more and more attention was given to the social aspects of education. By the close of the nineteenth century, however, much of the work done by the institutes—the provision of technical education, the establishment of public libraries ,and the support of day schools—was taken over by the local authorities, and gradually many of the institutes disappeared. Some lived on as social clubs or took new form as Local Authority technical institutes. It is in this rather technical and somewhat colorless section that the writing bogs down and loses force.

The author's conclusion is that the importance of the mechanics' institutes has been underestimated, and that they should be considered as one of the major educational movements of the nineteenth century. George Birkbeck's great contribution to this work was shaping "the vague aspirations of the time into an institutional form which not only served the needs of his own generation but bore within itself the seeds of future growth."

CLARA P. MCMAHON

KENNETH DEWHURST. *The Quicksilver Doctor.* The Life and Times of Thomas Dover, Physician and Adventurer. Bristol: John Wright and Sons Ltd., 1957. xii + 192 pp. Ill. 21 s.

Thomas Dover who lived from 1660 to 1742 was a man of great versatility. At one time an outstanding practitioner in London, he developed the opium powder known as "Dover's power," widely used as a diaphoretic and still found in the pharmacopoeia today. In addition he advocated the use of crude mercury as a form of treatment, the effect of which was largely psychological, and for this he came to be known as the "Quicksilver Doctor." Finally in his old age he put together his rules of practice in a book entitled *The Ancient Physician's Legacy,* first published in 1732, which was one of the most successful books of its time. Prior to his era of London practice, however, he had circumnavigated the globe as a commander of a privateer, apparently acting as a captain and not as a physician. On this expedition he captured the chief port of Ecuador and rescued Alexander Selkirk from his island, who subsequently became renowned as Robinson Crusoe in the story by Daniel Defoe. Dover had been well educated at both Oxford and Cambridge and had been a house pupil with Sydenham before he went into practice. He was something of a rogue and continually at odds with his brother practitioners.

All these facts in regard to Dover were well known when Sir Norman Moore wrote his official biographical sketch in the *Dictionary of National Biography* in 1888. Very little has been added to our knowledge of Dover since that date, but one or two errors of judgment have been corrected and Dewhurst, who has been

a careful investigator of Dover's life, has called attention to three minor letters in the British Museum and has been able to add considerably to our knowledge of Dover's last years during his period of varying fortunes. The book under review is a straightforward account, over-extending the brief facts in regard to Dover in order to make up a volume. It is interesting to note, moreover, that another life of Dover, published in 1955 by L. A. G. Strong, is rather more attractively written and accompanied by some superb illustrations. This book, strangely enough, is not mentioned by Dewhurst. Thus two lives of Thomas Dover have been written in the last two years, both of them good, but neither can be considered as an outstanding biography. Until more facts in regard to Dover are known it will probably be impossible to improve upon these two books. Both insist, and quite rightfully, that Osler was wrong in considering Dover as a buccaneer, for the expedition on which he sailed as a captain consisted of two frigates, both well armed and carrying no merchandise, but each possessed a privateering commission by the government to seek out and destroy Her Majesty's enemies. He sailed, therefore, under the highest naval authority in Britain, and should not be classed as a pirate or even a merchant adventurer.

HENRY R. VIETS

THE BULLETIN RECENTLY RECEIVED *

Antonio Hernandez Alcantara. *Estudio historico de la obra toco-ginecologica y pediatrica de Damian Carbon.* Salamanca, 1957. (Publicaciones del Seminario de Historia de la Medicina de la Universidad de Salamanca, Serie A, Estudios, Tomo I, Num. 5, pp. 311-387.)

Francisco Sánchez Capelot. *La obra quirúrgica de Juan Fragoso.* Salamanca, 1957. (Publicaciones del Seminario de Historia de la Medicina de la Universidad de Salamanca, Serie A, Estudios, Tomo I, Num. 6, pp. 395-463.)

Terence East. *The Story of Heart Disease.* The FitzPatrick Lectures for 1956 and 1957 given before The Royal College of Physicians of London. London: William Dawson and Sons Limited, 1957. 148 pp. Ill. 30 s.

Vincent Edmunds and C. Gordon Scorer [editors]. *Ideals in Medicine,* A Christian Approach to Medical Practice. London: Published for the Christian Medical Fellowship by The Tyndale Press; North America: Christian Medical Fellowship, Chicago, 1958. 192 pp. 12s. 6d.

Iago Galdston [editor]. *The Impact of the Antibiotics on Medicine and Society.* Monograph II. Institute of Social and Historical Medicine, The New York Academy of Medicine. New York: International Universities Press, Inc., 1958. x + 222 pp. $5.00.

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* The *Bulletin* reserves freedom of decision as to the publications to be listed in this section. Items received, other than those assigned for review, are ultimately incorporated into the collecton of the Institute of the History of Medicine.

Alcide Garosi. *Siena nella storia della medicina (1240-1555)*. Firenze: Leo S. Olschki, 1958, xvi + 570 pp. Ill. 15,000 Lire.

Luis S. Granjel and Mª. Teresa Santander. *Bibliografía española de historia de la medicina,* Volumen primero. Salamanca, 1957. 242 pp. (Publicaciones del Seminario de Historia de la Medicina de la Universidad de Salamanca, Serie B, Repertorios Bio-Bibliograficos, Tomo I).

E. M. Holmes, Jr., [editor]. *The Selected Writings of Marvin Pierce Rucker and Complete Bibliography of His Works.* Privately Printed. Richmond: Whittet and Shepperson, 1958. xviii + 198 pp. Ill. (The book is offered for sale at $7.50 for the regular edition and $25.00 for the memorial edition by the Marvin Pierce Rucker Memorial Association. Orders for the book should be addressed to the Marvin Pierce Rucker Memorial Association in care of the Richmond Academy of Medicine, 1200 East Clay Street, Richmond 19, Virginia.)

Lester S. King. *The Medical World of the Eighteenth Century.* Chicago: The University of Chicago Press, 1958. xix + 346 pp. Ill. $5.75.

Athanasius Kircher, 1602-1680. An exhibition of books from the History of Medicine Collection, Clendening Medical Library, Kansas City, Kansas, 1958. 15 pp. Ill.

Antoni van Leeuwenhoek. *The Collected Letters.* Edited, illustrated and annotated by a Committee of Dutch Scientists. Volume V. Amsterdam: Swets & Zeitlinger, Ltd., 1957. xii + 457 pp. Ill. $20.00.

G. B. Morgagni. *Autobiografia.* Trascrizione, traduzione e commento di A. Pazzini e M. Galeazzi. Rome, 1957. 143 pp. (A cura dell'Istituto di Storia della Medicina dell'Università di Roma.)

Ian A. Porter. *Alexander Gordon, M.D., of Aberdeen, 1752-1799.* (Aberdeen University Studies Number 139.) Edinburgh and London: Published for the University of Aberdeen by Olivier and Boyd, 1958. xii + 92 pp. Ill. 12s 6d net.

Ritchie Calder. *Medicine and Man,* The Story of the Art and Science of Healing. New York: The New American Library (A Mentor Book), 1958. 256 pp. 50 cents.

Lynn Thorndike. *A History of Magic and Experimental Science.* Volume VII and VIII, The Seventeenth Century. New York: Columbia University Press, 1958. Vol. VII: x + 695 pp. Vol. VIII: viii + 808 pp. $10.00 each.

CONTRIBUTORS TO THIS NUMBER

VERN L. BULLOUGH, PH. D., is Assistant Professor of History, The Youngstown University, Youngstown 2, Ohio.

ALFRED S. EVANS, M. D., is Director of the Division of Preventive Medicine of the University of Wisconsin. His address is University Hospitals, 1300 University Avenue, Madison 6, Wisconsin.

DOO JONG KIM, M. D., Professor of the History of Medicine, Seoul National University College of Medicine, Seoul, Korea, had an appointment as Fellow at the Johns Hopkins Institute.

SIR WILLIAM MAC ARTHUR, M. D., F. R. C. P., is Lecturer in Tropical Medicine, University of Oxford. He was formerly Professor of Tropical Medicine, Royal Army Medical College, London. His address is 48, Priory Avenue, London, W 4, England.

CLARA P. MCMAHON, PH. D., is Assistant Professor of Education and Director of the Division of Education of McCoy College and Summer Session, The Johns Hopkins University, Baltimore 18, Md.

WALTHER RIESE, M. D., is Chairman of the Department of the History of Medicine and Associate Professor of Psychiatry and Neurology at the Medical College of Virginia, Richmond 19, Virginia.

RICHARD N. SCHWAB, PH. D., is Assistant Professor of History in the Department of History and Political Science, University of California, Davis, California.

HENRY R. VIETS, M. D., is Curator, Boston Medical Library, 8 The Fenway, Boston 15, Mass.